TK4018
E5
V.26
No.5

ELECTRICITY ON THE FARM *Magazine*

MAY, 1953

Lightning Protection Factors . . .
Three Ways to Solve Problems
Wash With Washed Water . . .
Spuds and Costs—Machine Cut
Better Drying for Better Hay . . .

—— 26th Year ——

HIGH POWERED FARMING
See Page 16

A CASE-SHEPPERD-MANN PUBLICATION

Ask for G-E Motors and Control on all Electrified Farm Equipment you buy!

GENERAL ELECTRIC
FarmNews

1878 75 1953 YEARS OF ELECTRICAL PROGRESS

MORE POWER TO THE AMERICAN FARMER through more electricity on the farm

CROP DRIER ELIMINATES GRAIN STORAGE LOSS

Versatile crop-drying and storage "package" leads the way to less risk and more farm profits

Mrs. W. C. Boyle and her crop drier which permits earlier picking to prevent field loss and allows earlier fall plowing.

The crop drying building on Mrs. Boyle's farm. Notice the ventilating louver, sliding doors, and easy-to-fill hatches.

Mrs. W. C. Boyle of Grinnell, Iowa purchased an ear corn and small grain drying building in 1952. Says Mrs. Boyle, "We could have built an ordinary corn crib, but we wanted a storage unit that would handle wet corn and dry it out. In the past, we sometimes had more wet corn on hand than could be consumed by the cattle. We also like this building because of its flexibility—it can be used for many other purposes when not used for storing corn or grain. Also, this building is safe from rats and fire." Mrs. Boyle no longer has to worry about crop spoilage losses.

Mrs. Boyle's building is equipped with a drying tunnel and a semi-pressure fan powered with a dependable G-E 3 hp motor.

For more information, check "Crop Drying and Storing" on coupon.

FAST COOLING, EASY LOADING MILK COOLER BOOSTS PROFITS

It keeps bacteria count down and is sturdy and compact

Mr. Grisham and his milk cooler. Sturdy and easy to keep clean, the unit is thoroughly insulated with Fiberglas. Cans are only 11 inches from floor.

Mr. Luther L. Grisham, farmer of Elk Creek, Missouri uses a G-E powered front-open milk cooler to maintain his milk quality and to save himself work while doing it. He says, "This front-open milk cooler is the best and most convenient I've ever owned."

Milk cans may be easily slid in and out of cooler. Milk is cooled to 50°F. in less than an hour. Unit builds up and maintains a large ice bank for emergencies.

Available in 4, 6, 8, and 12 can capacities, cooler may be easily adapted to pipe line milking. For more information check "Milk Cooler" on coupon.

DEEP WELL PUMP IS THE HEART OF WATER SYSTEM

Provides plenty of water for modern, comfortable farm living

When William and Alberta Moffit Jr., of RR 1, Le Claire, Iowa built their new farm home, they had a water system installed to meet all their household needs. Says Mr. Moffit, "There's no substitute for a good water system. A dependable water supply is a must for the convenience of a modern kitchen, bathroom, and laundry. It's a big help when you have six children, too."

The completely automatic water system delivers 1700 gallons of water per hour. The pump requires no attention and will give years of dependable service.

The pump is powered with a dependable G-E motor. For more information on pumps and water systems check "Water Systems".

Harold "Red" Olson, well driller, shows Mr. and Mrs. Moffit the features of their pump located conveniently in basement.

General Electric Company
Section 671-28B, Schenectady 5, N. Y.

I would like additional information on the following:

- ☐ Crop Drying and Storing
- ☐ Milk Cooler ☐ Water Systems
- ☐ How to Choose Your Motor

NAME_____

ADDRESS_____

CITY_____ STATE_____

S
e"
its

le's
ver,
nes.

ell,
nd
in
uld
rib,
nat
it
ad
uld
lso
its
ny
for
his
e."
rry

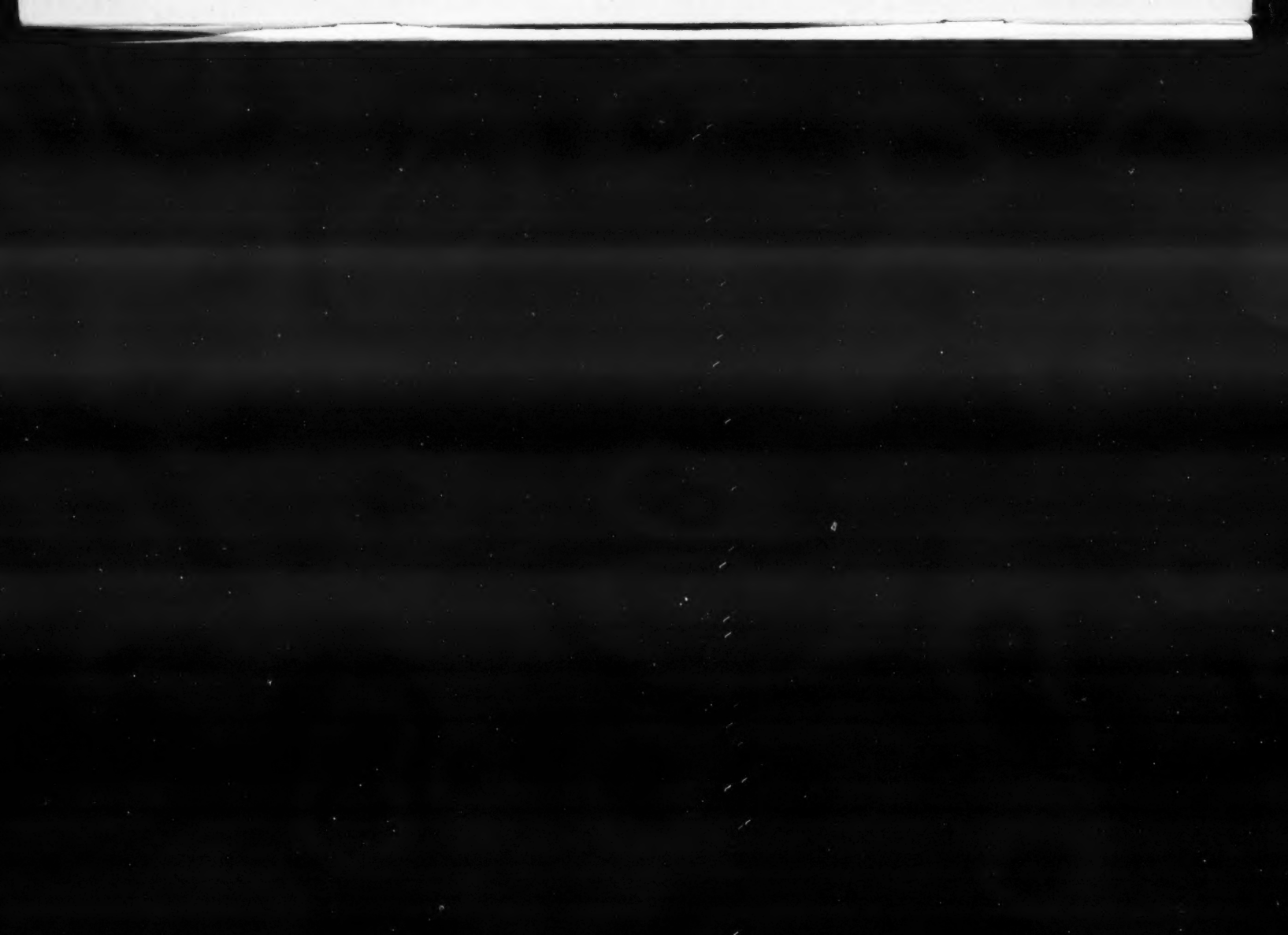
ed
ni-
le-

ck
on

.
n

s

-
-
-



Editor's Chat

THAT OTHERS MAY LEARN

Recently the Golden Anniversary of farm demonstration work was celebrated. It took place at Terrell, Texas.

Back in 1903 near Terrell on the farm of the late Walter C. Porter, Dr. Seaman A. Knapp's Farm Demonstration Plan was put into effect for the first time. This early demonstration work was concerned with growing different varieties of corn and cotton to prove under similar conditions which variety would produce the best yield. Dr. Knapp based his educational methods on his belief that "What a man hears, he may doubt; what he sees, he may possibly doubt; but what he does himself, he cannot doubt."

Dr. Knapp was a pioneer worker in the agricultural extension field. He was a USDA official from 1885 until his death in 1911.

The demonstration method of teaching continues to be the underlying principle of our Extension Service program. Even before Dr. Knapp's death, his demonstration work had expanded into many areas of the country. As a result, in 1914 the Smith-Lever Act was passed forming the basis for the Cooperative Extension Service in which the U. S. Dept. of Agriculture through the State Land Grant Colleges and the counties cooperate. The Extension folks tell us that now over 4,500,000 farm families are taking part in its program.

Back when I was a boy on a Virginia farm, it seems to me that about every good baseball playing Sunday afternoon was occupied with a visit to a neighbor's farm. Fortunately, in most cases it just meant playing on another field but it did delay the game at least. These neighborhood visits, however, were very important to the folks in the community. The ladies would exchange ideas on housekeeping and the men would spend most of the afternoon looking over the fields and examining livestock and new mechanical equipment. Now with good roads and modern transportation "neighborhood" visits and tours have expanded to include very often, farms in neighboring states. The County Agent or Home Demonstration Agent usually has a hand in organizing these tours. Quoting Dr. Knapp again, he said "Write your lesson in the fields, demonstrate it, that folks might see and follow."

In our editorial pages, we are simply placing before you various farm demonstrations on how *electricity* is being applied to advantage by one of your fellow farmers. We are bringing farm demonstrations to you.

As long as we are free to adopt new practices and exchange ideas, no force can stop the growth of our agriculture.

A DEFEAT FOR COMMUNISM

In Yugoslavia, defeat has been conceded in the effort of the government to collectivize farming. From what we hear agriculture is well along the road back to private ownership in that country. Stubborn resistance is also taking place in the Russian satellite countries. The farmers in these countries will certainly draw new strength from the victory scored in Yugoslavia.

Without freedom, incentive is lost, without incentive, hope is lost.

BE ACCIDENT FREE IN '53

Farm Safety Week doesn't come until July 19th, but to make it a success, we all should indicate our willingness in advance to help in any way we can. First of all, eliminate the hazards around your farm and in your home. Then do your part to make your community a safer place to live through a joint effort with your neighbors.

Safety is everybody's business the year round.

Jim Rikard

ELECTRICITY ON THE FARM *Magazine*

MAY, 1953—VOL. 26, NO. 5

Acceptance under section 34.64 P.L. & R. authorized at Dayton, Ohio.

W. J. RIDOUT, JR., *Editor*
K. V. ANDERSON, *Managing Editor*
NAN SHAW, *Housekeeping Editor*
KARL H. GORHAM, *Business Manager*

Subscription rates: $1.00 per year; $2.00 for 3 years; $3.00 for 5 years. 10¢ per copy. Bulk rates on request.

Published monthly except combination issues June-July and Aug.-Sept. by CASE-SHEPPERD-MANN PUBLISHING CORP. Executive Offices: 24 W. 40th St., New York 18, N.Y. KARL M. MANN, *President;* FRED SHEPPERD, *Editorial Director;* I. H. CASE. *Vice-President and General Manager.* Mid-West Office: 8 So. Dearborn St., Chicago 3, Ill. *Western Representative:* 6000 Miramonte Blvd., Los Angeles, Cal.

Copyrighted 1953 by Case-Shepperd-Mann Publishing Corp. Not to be reprinted without permission.

Better Drying for Better Hay

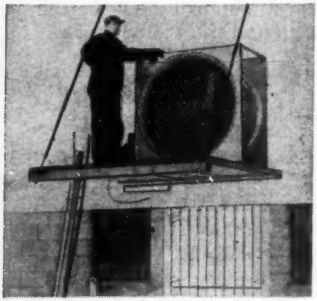
Quality Roughage Replaces Grain

By IRVIN FISHER

I bought my crop drier less than a year ago, but I figure it has already more than paid for itself," relates Lester Bradley.

Mr. Bradley and his son, David, have been milking 25 head of Holstein cows this past winter on their farm near Dalton, Wisconsin, and they are both equally enthusiastic about their new drier.

David explained it this way. "The year before last, we bought over $1000 worth of grain supplements because the hay we were feeding was very low quality. During that time, the herd average was a little less than five gallons a day per cow. Dad and I made up our mind this year to



The 7½ hp 42 inch fan unit is mounted on a small outdoor platform at one end of the barn. An air tight duct, five feet long and the same size as the fan frame, delivers air into the large open center duct. Closing the first five feet of duct keeps the air from chimneying up along the wall and forces it out through the hay.

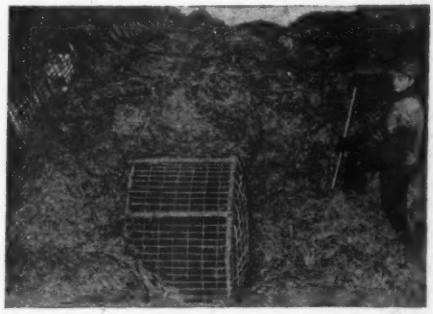
find out if the money we spent for a drier was a good investment. We had the hay tested for protein content. After it had been cured on the drier, the hay was found to test 15.85% protein. With a top quality roughage like this, we felt that a good ration could be made up from corn and oats chop, corn silage, and all the mow cured hay that the cows could eat.

"The results of this feeding program have certainly opened our eyes. The cows have averaged over five gallons of milk a day per cow and we have not yet spent one cent for grain supplement!"

"There is one thing that a farmer should keep in mind," the elder Bradley was quick to add, "A drier is not a piece of equipment that he can simply buy, take it home with him, and expect it to do a good job. There are things that must be kept in mind when the drier is being installed—also when the drier is in operation in the mow."

This last is most important. Good management is essential to the successful operation of any kind of drying equipment. Bradley says, "Never cut down more hay than you can reasonably expect to put up in one afternoon and then let this dry to about 40% in the field. We find that the best job of drying chopped hay is achieved if the length of cut is 4" or longer. The last, but by far, not the least important factor is that there must be an equal depth of hay in all directions through which the air must pass. In other words, the same shape of duct which is used in a narrow mow would not probably be suited to a wide mow."

The Bradleys' drier was also used in the new corn crib they built last Fall. As a result, they plan from now on to pick their corn at a moisture content of about 26-28% and save much of the corn they have been losing by picking at 20%. "Besides," Dave added, "it's a lot more pleasant to pick corn in early October when the weather's warm than it is to be riding on a tractor out in the corn field with the snow flying."

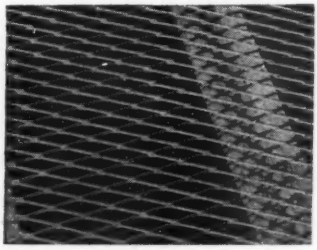


Here you can see part of the main duct and one of the laterals. They are both of the same open type, although the main is larger. Hay-length is about five inches and it is not difficult to remove from the mow for feeding. This hay, a mixture of alfalfa, clover, and brome, tested 15.85% digestible protein.

More Air—Bigger Ducts—Lower Costs

By J. B. STERE

Noteworthy general advancements have been made in mow hay drying over the past two years. The development of either a new or improved skill, which is in keeping with the objectives of mow hay drying, is perhaps the most significant one. Those who have acquired this skill have found it easier to make top quality hay than it is to

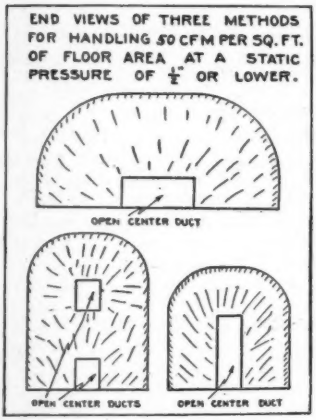


In the false floor type of air system, generally used for low mows, each part of the system should be large enough to avoid excess pressures. The 70 to 75% open false floor, shown in this picture is a new development. It provides less restriction at the point where the air entering the hay.

make a poor quality hay.

The forage harvester, coupled with feeding arrangements suitable for chopped hay, and the light density bale, handled by horizontal floating conveyors, are responsible, in part, for much of the savings in labor. The elimination of waste motions in field working of hay, the savings of leaves and nutritive value, and the small bales have made man and machine hours more effective. The better understanding of drying principles has, however, enabled faster drying and permitted the handling of more water which is necessary to assure top quality hay year after year.

The fuller realization of the economic value of feeding large quantities of good hay for producing meat and milk has been the advancement that stimulated the others. In two years, some dairymen have increased the value of product over feed costs by $54.05 per cow per year with high quality hay. Others measure their advancements in terms of pounds of milk per pound of mill feed. In the past two years,


END VIEWS OF THREE METHODS FOR HANDLING 50 CFM PER SQ. FT. OF FLOOR AREA AT A STATIC PRESSURE OF ½" OR LOWER.
OPEN CENTER DUCT
OPEN CENTER DUCTS
OPEN CENTER DUCT

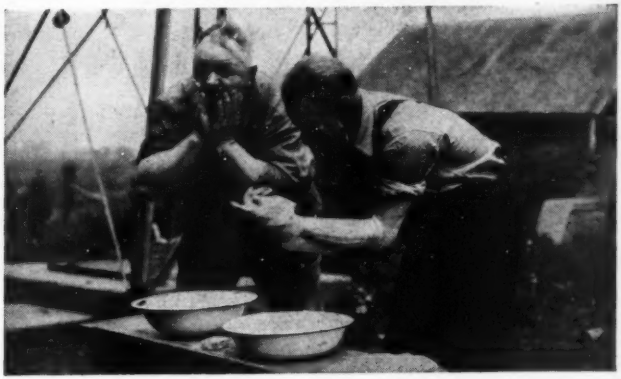
dairymen feeding good hay have increased this ratio from 3.97 to 8.95 lbs. of milk per lb. of mill feed and at the same time increase milk production from 10,325 lbs. to 10,722 lbs. per cow. Herds that are making these low production cost figures are eating from 40 to 50 lbs. of hay a day.

Perhaps the greatest change, the one that helped make the

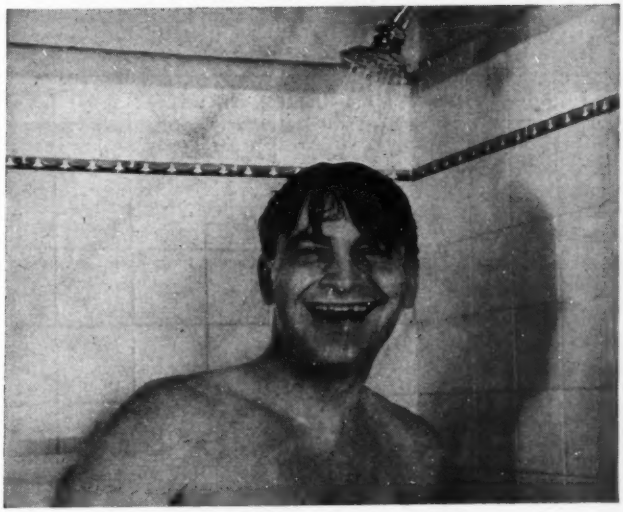
. . . . . (More on page 28)

THREE WAYS OF KEEPING CLEAN

Take a dip in the pool in the summer,



Or at harvest, a basin will do—



But for a real year-round satisfaction
Take a shower and feel good as new.

PLENTY of WATER under PRESSURE
makes the difference

A Thirty Minute Job

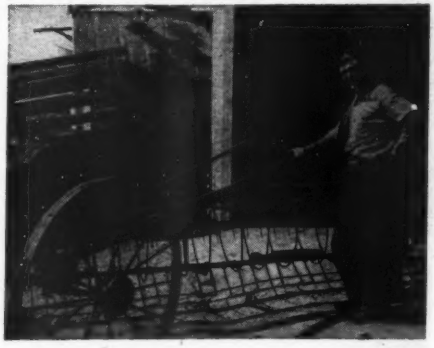
Welded Repair Saves the Day for Baling Crew

It was a simple matter to back the rake up to the shop doors. The break was prepared and the welding started.

Marion Martin of Hebron, Ohio, was raking hay in preparation for a custom crew. They were due at his farm at noon to do his hay-baling job. In the middle of the mowing the main cross-bar on his side-delivery rake broke, forcing him to stop for repairs. If Martin hadn't had a welder on the farm, he would have lost the balance of the day, at least, getting the repairs made. He would either have had to dismantle the rake and take the part to town, or wait for a portable outfit to come to his farm and make the repair. In either case, he would have lost the services of the baler crew for that day. And, since it was an exceptionally busy time for this crew, he would have had to wait his turn for them to come back again. With his welder the repair was made simply and easily and he was back at work in 30 minutes.

The tractor and side-delivery rake were backed up to his shop doors and preparation was made to weld the broken cross-bar. Since the break happened at the bolt holes, Martin also decided to add an additional brace at the point of the break to further strengthen it. The welder was hooked up to the broken hay-rake and Martin was ready to make the repair.

A short piece of angle iron was welded in back of the repaired break to form an upright. A second section of scrap angle iron was bent (using the arc-torch) to the proper shape and then welded to the added upright and to the cross-bar on both sides. This repair, saving hours of valuable time, was made in exactly 30 minutes. Incidentally, it rained about 4 o'clock that same afternoon and the hay would have been in sorry condition if the baling hadn't gotten done. Martin also uses the welder to build many handy tools for use on his farm. He feels that it more than pays for itself.



Thirty minutes later the rake was ready to go back into operation. Mr. Martin had added an extra brace to further strengthen the repaired part.

Such experiences as Martin's are becoming more and more common. Welding is quick and simple, and the results are strong and serviceable. However, there are two potential hazards in a welder. One is fire and the other is shock. Neither one should be any cause for concern if sensible procedures are followed. Here are ten safety rules to always observe in using a welder.

1. Never use a make-shift welder. On farms, a transformer type welder conforming to NEMA farm welder specifications should be used.

2. Voltages required for arc welding are low and, with normal care, will not cause fatal injury or severe shock. However,

HAPPY MAN—USELESS SHOVEL

Everything is busy here but the man and the shovel. Electrically powered conveyors and a wagon unloader are doing the work. Just think how much manual labor it would take, and how many blisters it would make, to unload the corn with the shovel! Here, a ¾ HP motor is doing the job almost effortlessly. It is turning a shaft that rolls up a canvas on itself at the bottom of the wagon bringing the load with it. The man that owns the shovel is Arthur Nelson, a farmer who lives near La Porte, Ind. That's his son, Bob, tending the operation. *George R. Harrison*

electricity, whether AC or DC, high or low voltage, should be treated with respect.

3. Never weld if your clothes are wet from rain or sweat. This condition will reduce the electrical resistance and increase the chance of getting an electrical shock while welding. Never weld while standing in water.

4. Protect your eyes from harmful rays of the arc. A No. 10 dark welding glass is sufficient when doing maintenance welding. For long welding periods a No. 12 dark glass should be used.

5. When using a carbon arc torch, remember that the intensity of its ultra-violet rays is considerably greater than those of the electric welding arc. Keep your shirt buttoned at the neck and your sleeves down and use gloves when doing this work.

6. Have the insulation on your welder checked occasionally. Examine the welding cable for breaks and cuts. Replace defective cable when it is found.

7. Don't crawl into a tight spot, such as a tank or other confined space, while you're welding unless you have a helper. This precaution should be observed not only because of the electric current involved but also because there have been cases of near suffocation from the smoke.

8. Be sure that every person who watches you while welding has a helmet to use and that you advise them when you are about to strike an arc. Only a careless welder will give his audience arc flashes which may later cause severe discomfort or injury to the eyes.

9. Ground return circuits from the work to the machine should be made with a cable. Pipelines carrying gasses or inflammable liquids should not be used for ground return circuit.

10. Be very careful if the welding must be done near inflammable material. Don't weld gas tanks. Even the oldest of gas tanks may have an accumulation of rusty sediment in the bottom which can easily generate an explosive gas when the welding heat is applied.

Good welding can be done profitably, easily and safely. Injury is a heavy fine to pay for not observing safety rules.

THREE WAYS TO MAKE A CROP

Sow your seed and pray for rain—

Or wait till it rains to do it—

Or sow your seed and let it rain
Whenever your crops can use it.

PLENTY of WATER under PRESSURE
makes the difference

Lightning Protection Factors

The Cause of More than a Third of Farm Fire Losses Can Be Controlled

By R. D. BIENEMANN

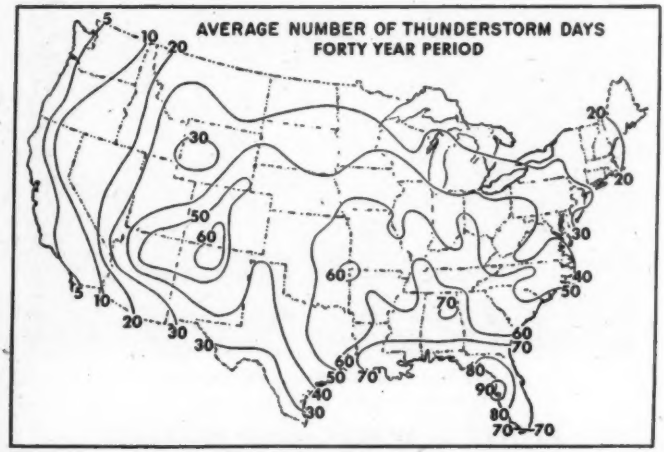
Are your buildings properly protected against lightning? The answer to this question in far too many cases is still—NO—despite the educational programs of insurance companies, the National Fire Protection Association, the U. S. Department of Agriculture, National Bureau of Standards, and many recognized farm agencies. Lightning is still the foremost cause of farm fires, being responsible for 37% of the total farm fire loss annually. This loss could be materially reduced, or almost completely eliminated. How? By the installation of Underwriters' Laboratories Approved Systems of Lightning Protection on unprotected buildings; the careful repair and maintenance of presently installed systems; and the installation of proper capacitors on electric service distribution panels.

The fact that lightning rods provide protection from direct lightning strokes has been an accepted fact for many years and records of the insurance companies offer evident proof of their value. The loss on protected buildings is especially low, taking into consideration the poor condition of some very old installations. Some of these have not been maintained for many years, thereby permitting the breaking of down leading cables destroying the value of the grounds and leaving only the appearance of a system on such structures. In addition to this, numerous changes and alterations of buildings, the addition of running water systems, and the many labor saving devices forming a modern farm frequently destroy the value of the basic lightning protective system.

A modern system of lightning protection consists of proper, low, inconspicuous air terminals, or points, connected by means of specially designed cables of permanent copper or long lasting aluminum. They should be correctly coursed over the building and connected to permanent ground electrodes driven to a depth of not less than 10 feet. They remain very similar to the systems installed for many years. The installation of today does not stop at this point, however. Such things as stanchions, metal conveyors for barn cleaners, metal hay fork tracks, ventilators, metal door tracks, etc., all must be connected to the lightning protection system. This establishes a common ground for metallic masses within or on the surface of the building. It prevents side flashes to such metal bodies which would cause either damage or destruction to the building.

In providing adequate protection for a building the most important factor is establishing as nearly perfect a ground as possible. Experience has proven that a ground electrode sunk to a depth of 10 feet, where soil conditions permit, supplies this

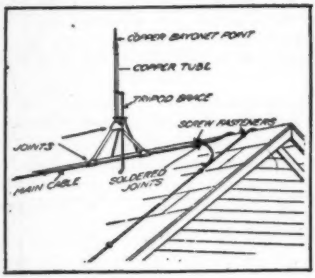
Inconspicuous air terminals, at all points subject to direct stroke, should be connected, by continuous cable, to permanent grounds driven to a depth of ten feet.



Find your spot on the map. The average number of thunderstorm days you can expect in one year will lie between the figures given on the lines on either side of it.

vital requirement. Many times, however, due to soil conditions, this depth cannot be reached and it is necessary to drive additional ground rods and connect them together to reduce resistance to a minimum. An alternative is to provide an encircling cable around the foundation of the building, approximately 2' below grade. Then the various ground rods should be connected to it. This arrangement will provide sufficient earth contact to eliminate the possibility of damage.

With the extension of electric service to rural areas another complex problem has presented itself. Where proper lightning protection has been installed on farm buildings, damage has continued to occur to electrical appliances and equipment. After



Some air terminals are tripod mounted. However, they are no more effective than some of the less conspicuous types as at left.

exhaustive studies it has been determined that these are not direct lightning damage. Instead they are caused by secondary, or induced, surges. These could not be eliminated by interconnection between the secondary ground of the electric wiring system and the lightning rod ground. After experimenting with many units, it was finally discovered that proper capacitors installed at the distribution panel would eliminate this hazard. Within the past few months the Underwriter's Laboratories has approved the first especially designed protective capacitor for this purpose. It is now possible to provide protection from direct strokes of lightning to buildings as well as secondary or in-

THREE WAYS OF WATERING LIVESTOCK

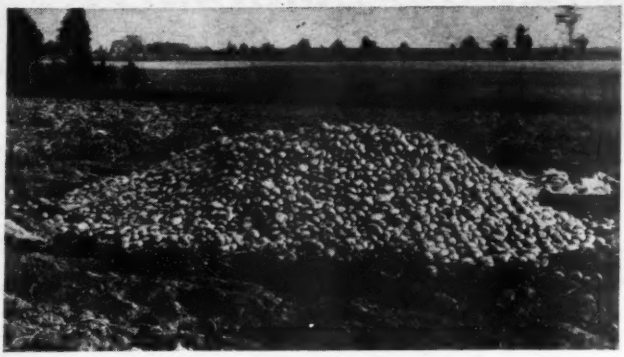
leave them out in the rain to absorb it—

or lead them a half mile or two—

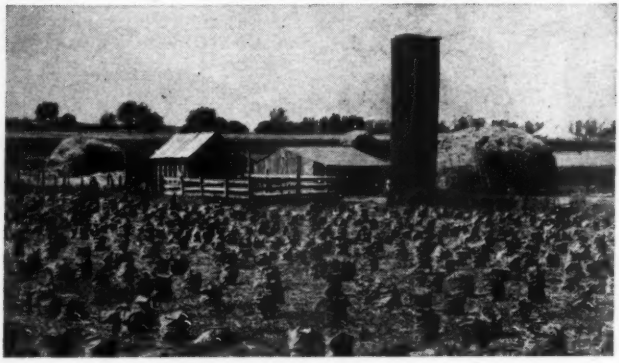
or let them relax and enjoy it
'twill mean bigger milk checks for you.

PLENTY of WATER under PRESSURE
makes the difference

THREE WAYS TO MARKET A CROP



sell it in bulk at the whim of the buyer—



or get more by bagging it, too—

or wash it to make it attractive
and have more cash coming to you.

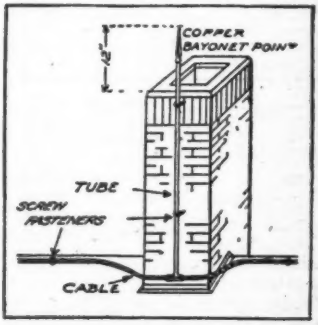
PLENTY of WATER under PRESSURE
makes the difference

duced surges on wiring.

But such a job is nothing to be undertaken lightly. Exhaustive research has gone into the development of the proper materials and methods to be used. Just *any* wire won't do. Nor will haphazard workmanship. The National Fire Code has set up standards as a guide to proper installations. They are specific and exacting. Here are some of their general recommendations.

Air Terminals: The structure should be examined and all points or parts most likely to be struck by lightning noted, with the view of erecting air terminals thereon for the reception of the discharge. The object is to intercept the discharge immediately above the parts liable to be struck rather than to attempt to divert it in a direction it is not likely to take. The receiving points should be placed high enough above the structure to obviate danger of fire from the arc.

Conductors: Conductors should be installed with the view of offering the least possible resistance to the passage



Standards have been set up for materials and methods of installation of lightning protective systems. They should be rigidly followed if full protection is to be achieved.

of a stroke between air terminals and ground. The most direct path is the best and there should be no sharp bends or loops for the lightning to jump across. From each air terminal there should be at least two paths to ground and more if practicable. The number of paths is increased and the resistance lessened by connecting the conductors to form a cage inclosing the building.

Grounds: When a stroke is about to take place to earth the surrounding surface of the ground for a radius of several miles carries an electric charge. Near the point where the discharge enters the ground the current density becomes high, and if the flow takes place through the foundation wall of a building damage may result. Ground connections should therefore be distributed more or less evenly about the circumference of a structure rather than grouped on one side. In every case, at least two ground connections should be made at opposite extremities of the structure.

This is the "Master Label" which signifies that an installation conforms, in both materials and workmanship, to the safest standards for lightning protection.

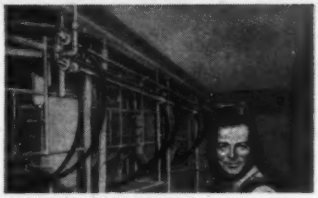
Nearby Metal Masses: If a lightning conductor system is placed on a building within or about which are metal objects of considerable size within a few feet of the conductor, there will be a strong tendency for sparks, or sideflashes to jump from the conductor to the metal at its nearest point. To prevent damage an interconnecting conductor should be provided at all places where sideflashes are likely to occur.

Inside Metal Masses: Within buildings where metallic objects may be subject to high voltage due to a lightning flash, the metal, if not interconnected with the lightning rod system, should be independently grounded and in some cases both interconnected and grounded.

Type of Construction: Since a lightning conductor system as a general rule is expected to remain in working condition for long periods with little attention, the mechanical construction should be strong and such materials used as to offer high resistance to corrosion.

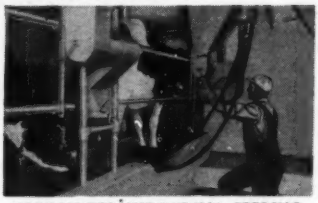
. . . . . (More on page 29)

ONE-MAN DAIRY OPERATION

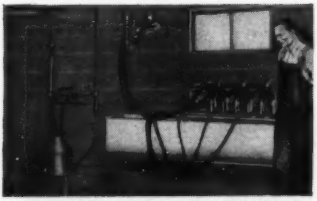


MILKING ROOM TYPE. From cow to cans or refrigerated farm tank, the De Laval Combine in a separate milking room does the entire job . . . eliminates stooping, squatting and walking.

BARN TYPE. Installed along the stanchions in the dairy barn, the De Laval Combine milks and conveys the milk to the milk house, saving all carrying and pouring.



MECHANIZED INDIVIDUAL FEEDING. Milking stalls, available for use with De Laval Combines, measure and deliver the exact amount of grain desired for each cow.



MECHANIZED "IN-PLACE" CLEANING. Regardless of where it is installed, the De Laval Combine can be quickly, easily and thoroughly washed and sanitized by the De Laval "In-Place" Vacuum Cleaning Method.

One-man dairy operation is now a practical reality . . . today! The De Laval Combine Milker completely mechanizes the milking operation whether installed in the dairy barn or milking room. It milks, weighs individual production, if desired, filters, and conveys the milk to cans or farm tank. The De Laval Combine is then washed and sanitized by De Laval "In-Place" Vacuum Cleaning . . . a completely mechanized method.

Individual graining of each cow, in precise quantities, is also fully mechanized at the milking stall. Thus, step by step, De Laval has completely mechanized the entire milking operation so that today with the average size herd, one man can easily handle the entire job. The hard work, heavy lifting, miles of walking, and high labor costs have been eliminated. The result is easier, pleasanter, more profitable dairying. And closer attention to handling each cow is possible.

DE LAVAL COMBINE MILKERS

"FIRST—SINCE 1928"

De Laval

THE DE LAVAL SEPARATOR COMPANY

POUGHKEEPSIE, N. Y.

427 Randolph St., Chicago 6, Illinois

61 Beale Street, San Francisco 5, Calif.

THE DE LAVAL SEPARATOR CO., DEPT. 11-S
Poughkeepsie, New York

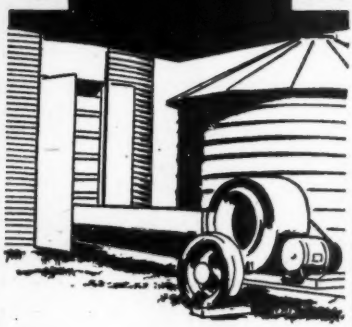
Please send me interesting new printed matter on De Laval Combine Milkers

(INDICATE TYPE OF INSTALLATION YOU PREFER)

Name_____

Town_____ R.F.D.____ State____

Why take chances with your crops?



Dry grain indoors!

Harvest earlier, in good weather, and boost profits with ILG Crop-Drier Fans. You reduce dangers of field damage, lessen shattering losses at harvesting, provide safe storage for high-moisture grain, get higher prices for first-quality products, and improve certified seed production. Get the complete story in ILG's "Crop-Drying Handbook," a factual report on how alert farmers have worked out their crop-drying systems. Send coupon now for your FREE copy — no obligation!

ILG *knows ventilation!*

FREE! New bulletin with diagrams, tables, and complete information. Send coupon now!

ILG ELECTRIC VENTILATING CO.
2881 North Crawford Avenue
Chicago 41, Ill.
Offices in more than 50 Principal Cities

☐ Send ILG Crop-Drier Bulletin No. 391-N

Name_____

Address_____

City_____ State_____

Spuds and Costs - Machine Cut

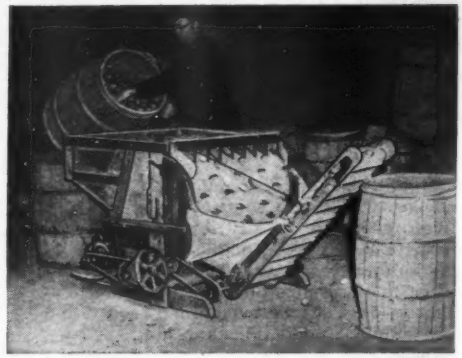
Small Motor Does Work of Twelve Men

By HOWARD D. BARTLETT

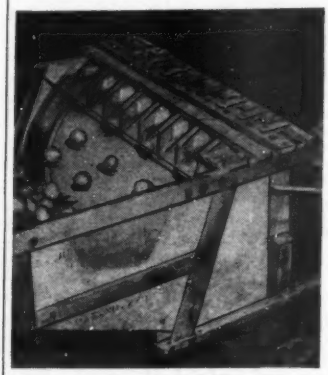
In any farming enterprise, the use of equipment that will enable a man to accomplish more work is the key to greater profits. For a potato grower, the problem of making a profit starts before a single seed is put in the ground. To hold production costs down from the very start, Mr. John Rockwell of Exeter, Maine, uses a mechanical seed cutter. He finds that one man can do the work of twelve hand cutters. Since a shortage of manpower is often a problem at planting time, the dependable service of this machine insures that his crop can be planted on time.

The cutter has no intricate moving parts to get out of adjustment. Its principle of operation is a revolving drum with several rows of pick-up brackets in line with stationary cutting knives. The potatoes, dumped into a hopper, roll against the drum which feeds them to the knives. The cut seed slides onto a conveyor and on into a container ready for planting. The potatoes are properly centered against the knives by two spring guides. This prevents thick and thin slicing which often occurs with rapid or inexperienced hand-cutting. The cutter is designed specifically for the widely favored smaller size (1¾-2½ inches) pieces of certified seed.

One man can feed the hopper and take away the cut seed. A ¾ H.P. electric motor and this one attendant can easily handle up to 30 barrels (110 bushels) of potatoes an hour. In this way he is able to keep pace with a two-row potato planter, covering about 12 acres per day. Twelve experienced cutters would have to be employed to prepare seed at this rate. Thus, this small electric motor and cutter take the place of eleven men.



This simple machine and a few cents worth of electricity per day prepare enough seed to keep up with a two row potato planter on the Rockwell farm.



Each pick-up bracket holds a single potato and forces it against a stationary cutting knife. The brackets are made in two loops with an opening between to let them pass by the cutting knife.

Mr. Rockwell's machine represents an investment of only $300 and the electricity it uses amounts to about 3 kwhr's per nine hour day. Considering the high present-day wages, this affords an appreciable saving at planting time on his 230 acre enterprise.

Further use of electrically powered equipment to handle the potatoes into storage and convey them to the graders takes the backache out of potato farming and rewards him with substantial profits for his production efficiency.

Lee Haley, (left) and his cousin, Layne, are quite proud of their "emergency ward" for their farm machinery. Small but adequately equipped, it contains a welder, ½" power drill and stand, a bench grinder, and a combination wood planer and saw. The latter piece of equipment was in constant use when Layne was building his home.

Modern Farm Shop is an Emergency Ward

Corn and peanut farmers in the Gulf Coast area of South Texas are faced with the task of matching wits with the elements at every harvest. Sudden rain storms can blow out of the Gulf at a moment's notice and ruin a crop of unharvested peanuts by causing them to sprout. Rains can also turn a corn field into a sea of mud, slowing harvesting operations and sometimes halting work completely. Wasted time and ruined crops due to untimely rains can mean only one thing to a farmer—financial loss.

C. Layne Haley, and his cousin Lee Haley, corn and peanut farmers near Waller, Texas, have learned to keep one step ahead of the weather. Experience has taught them both that it pays to keep harvesting machinery in top condition. And it has been possible to do this through the use of their farm workshop. "We used to make the 10-mile round-trip to Waller many times during the harvest", Layne said, "to have machinery repaired. We often had to stand in line to wait our turn since there was only one garage in town with a welder". Since the installation of the farm workshop several years ago, no time has been wasted in making trips to town for emergency repairs.

The primary purpose of the shop is repairing equipment. However, the two men, built a much needed corn conveyor and field loader during the recent "breather" between harvesting and spring planting. Since the dual-purpose machine had to be mobile, the front axle and wheels of a junked car were first obtained. A Vee frame made of scrap angle iron was then welded together and attached to the axle with "U" bolts. Then a double bottomed conveyor trough, constructed of four 1" x 12" x 20' boards, was bolted to the metal frame. It was mounted at an angle of approximately 30 degrees. Chains,

"The day our Fairbanks-Morse water system was installed, I was no longer a slave to housework!

"I could now have a water heater, and all the hot water I needed for baths, washings, cleaning chores and the kitchen. The way was open to have a modern bathroom and laundry.

"Today, I have all these electric appliances—and more. I'm a free woman, with time for my family and a social life I needed so badly.

"The cost? It was the lowest in the world to pay for better health, convenience and happiness!"

Want To Be Free, Too?

In your town, or nearby, is a Fairbanks-Morse water system dealer. Let him show you how little it costs to have a modern water system installed. He'll help you select the one best suited to your needs. Ask him about including an electric water heater in your purchase on a convenient time payment plan!

Ask for Free Booklet Your Fairbanks-Morse dealer will be glad to give you a copy of the new, authoritative booklet, "How to Select an Ideal Water System." It gives the kind of information about installing water systems you want to know. If you do not remember the name of the Fairbanks-Morse dealer nearest you, mail the coupon. We'll send you the booklet at once.

FAIRBANKS-MORSE

a name worth remembering when you want the best

WATER SYSTEMS • GENERATING SETS • MOWERS • MAGNETOS • HAMMER MILLS • PUMPS • MOTORS • SCALES • DIESEL LOCOMOTIVES AND ENGINES

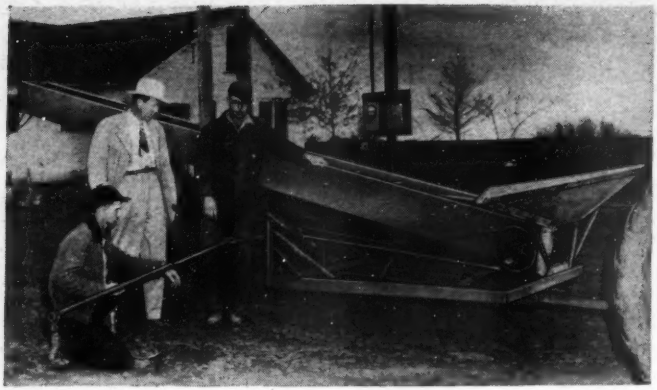
Fairbanks, Morse & Co.,
600 S. Michigan Ave.,
Chicago 5, Ill.

Send us your free booklet, "How to Select an Ideal Water System." We are buying our first pump ☐. We want to replace our old one ☐.

Name .....

Address .....

City ..... State .....



Layne Haley shows how the corn conveyor is powered. In the field, it is run by a tractor power take off through the universal jointed shaft Layne is holding. When operating in the barn, a ½ hp motor is called on to do the job. Looking on are George Thielman and Lee Haley.

sprockets and shafting were next obtained from a discarded manure spreader. Wooden flights were bolted, at each end, to the two conveyor chains. They were made by ripping a dressed 2″ x 4″ down the middle and notching each end so the bottoms could ride on the floor of the trough. Finally, a single Vee belt drive was provided which would slip if anything lodged in the conveyor chain.

In the field the loader is operated by a tractor power take-off, through a universal jointed shaft. Around the buildings a pulley is slipped on in its place and a ½ HP electric motor provides the power. Total cost of the project amounted to $43.75. The conveyor will handle about 250 bushels of ear-corn per hour.

Automatic Cattle Feeder

By Clyde Roberts

John E. Miller and his sons Alto and Merlyn had a problem. They operate a 386 acre beef cattle and turkey farm just east of Milan, Ohio, with the aid of one hired man. But he was leaving for other work! So, they decided to turn more of their work over to electrical equipment.

The Millers' first step was to install a modern glass-lined silo. As this has an unloader built in, it lends itself to a pushbutton operation. To this they added a conveyor, from the unloader to the feed trough, and a barn cleaner to distribute the silage along both side of their 76′ concrete feeding trough.

All there is to the feeding operation now is to push three motor starting buttons—one 5—one 2—and one ½ horsepower. Later, they go back and shut off the three motors when the feeding is over.

Compare Yardley *ClearStream* pipe with any other!

Planning to improve your farm water system? Whatever else you need, investigate ClearStream — the modern pipe for both jet pumps and lateral lines.

BE SURE before you buy. There is a difference in plastic pipe. To protect you, Yardley guarantees ClearStream pipe two ways—100% virgin materials—full weight and wall thickness meeting Approved Standards for the industry.

A type and size for every cold water use, both flexible and rigid, in all sizes. Full line of fittings. Send for literature.

For Jet Pumps—2-in-1 "Twin-du-it" Pipe

It's new, faster, better. Two joined pipes extruded and coiled as one in perfect alignment—that's "Twin-du-it." Install without forcing or binding.

Yardley Plastics Co., Columbus 15, Ohio
In Canada: DAYMOND CO., LTD., CHATHAM, ONTARIO

CHECK LIST

Yardley ClearStream has these advantages over other types:

☐ *more water*
Delivers 25% greater volume for the same head loss.

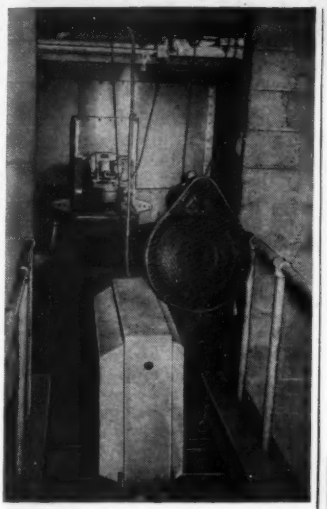
☐ *long life*
Lasts for years because it won't rot, rust or electrolytically corrode.

☐ *low cost*
Fewer fittings, faster lay-up, labor savings up to 60%.

☐ *light weight*
100 feet of 1″ ClearStream weighs less than 20 lbs.—⅛ the weight of steel.

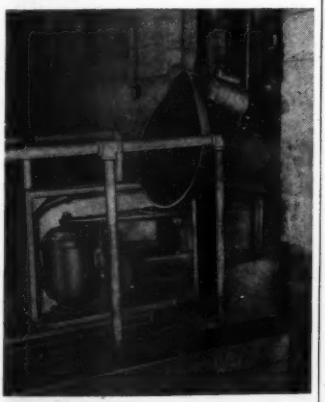
☐ *easy to install*
Long lengths handle 10 times faster than metal. No threading or special tools required.

Insist on *ClearStream*
Look for the Name on Every Length



A ½ hp auger takes the silage from the silo unloader and dumps it onto the feeding trough. There, the endless, slow moving chain and paddles take it up one side and down the other until the entire 76 foot trough is filled. Cattle feed on both sides.

Mr. Miller aims at having 70 cows and 40 calves on feed all of the time and is working toward a pure bred herd. He has two pure bred bulls, one Hereford and one Shorthorn, and is using them to upgrade his herd. This currently includes 24 head of pure bred cattle. In addition to their beef operation, the Millers raise and market 1800 dressed turkeys annually.



Here, the cover is removed to show the barn cleaner power unit and 2 hp motor which moves the silage along the feed trough.

More water for home improvements with a big-capacity Myers

Want a shower in the basement or barn? With a big-capacity Myers water system it's easy to provide an extra outlet. Easy monthly terms if you wish.

Dishwashing is quickly and easily done, meal preparation goes faster in a modern kitchen. A Myers dealer can install sink, cabinets, and water system.

With an automatic washer and dryer you can wash and dry dirty clothes while you're doing other things. A big-capacity Myers gives you all the water you need.

Farm living is more pleasant and comfortable when you have a modern bathroom. A big-capacity Myers water system can be installed on easy terms.

You can get more water dependably and at lower cost with a Myers. A Myers dealer will be glad to give you a free estimate.

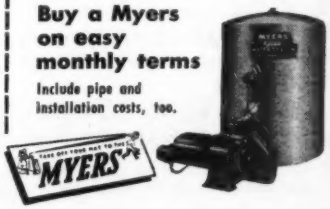
The F. E. Myers & Bro. Co.,
118 Fourth Street Ashland, Ohio

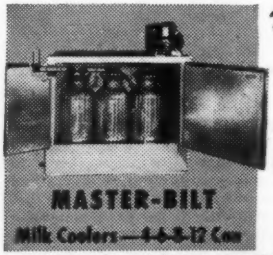
For plenty of water, plenty of pressure

More Buyers Buy Myers

Buy a Myers on easy monthly terms

Include pipe and installation costs, too.





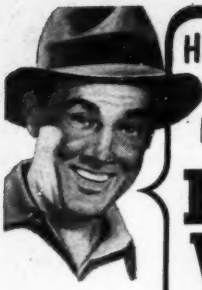
Now . . . **Better Pipeline Milking!**
Easier Cleaning!
Highest Milk Profits!

Check these outstanding features!

- Fast cooling . . . with special gravity (no-splash) spray
- Fits any pipeline or conventional milking system
- Easier cleaning (all interior parts accessible)
- Economical . . . temperature control operates only when needed.
- Sealed condensing unit
- Fast . . . easy loading

Complete line includes immersion units. See your dealer—or write for literature and prices.

MASTER-BILT REFRIGERATION
MANUFACTURING COMPANY
921 PALM STREET ST. LOUIS 7, MO.



Here's How I Rebuilt My Land WITH Flowing Water

Multi-Stage Deep Well Jet

F & W PUMPS GIVE YOU **FLOWING WATER** AT ITS BEST!

● With land played out and crops failing, this farmer planted a few acres in grass to try a comeback with a small dairy herd. Manure from the barn was flushed into a drainage tank, and later sprayed back over the land. Today, he not only has one of the finest herds in his state, but his land is rich and fertile again . . . thanks to treatment made possible by Flowing Water!

You'll make more money, too, with Flowing Water, and extra dividends in health and comfort for all the family. These advantages can be yours most dependably and economically with an F & W Water System. For example, the F & W Multi-Stage Deep Well Jet Pump, shown above, has a patented control-valve that automatically keeps the pump at top efficiency throughout the pumping range. This, plus precision manufacture and advanced design assure longest service and lowest cost per year. Whatever you need, there's an F & W model with comparable advantages to meet the problem.

Send for Free Booklet "Running Water for Rural Homes"

F & W Means Flowing Water by
FLINT & WALLING MFG. CO., INC.
595 Oak St., Kendallville, Indiana

F&W WATER SYSTEMS

FARM-USED, FARM-PROVED FOR 87 YEARS

High Powered Farming

By W. N. MUIR

The farmland about Caro, Michigan, 100 miles north of Detroit, received a lot of rain last summer. Too much, in fact, when the wheat crop was ready for the combines. But the heavy rains didn't worry Harry E. Rohlffs who owns a farm nine miles northeast of Caro.

Every previous season Harry had been concerned about dampness. But last year Harry Rohlffs was ready. A batch-type forced air grain drier had been built into a corner of Rohlff's elevator about five feet above the first floor level. The inexpensive wooden bin was designed to hold 300 bushels at a time. A 36-inch diameter propeller-type fan driven by a 5 HP motor was installed to provide drying air.

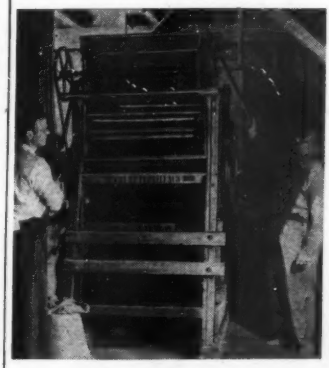
The air is blown into a large main duct where its velocity is reduced. This main duct, running full length of the bin, was built of ⅝" plywood. Air flows from this main duct up into several distribution ducts on the bin floor. These distribution ducts have openings covered with screen wire to prevent grain from falling into the main duct. Air coming out of the several distribution ducts is forced up through the grain or beans to remove the moisture.

The results obtained with the new drier were all that Mr. Rohlffs had expected. He was able to remove the moisture from wheat in just 11 to 14 hours time. Equally good results were obtained with oats, barley and beans. He particularly likes the idea of combining his grain and beans at the peak of perfection. Damp though they may be, he can safely store them without fear of spoilage. The cost: a few cents a bushel, offset many times by the higher price his No. 1 seed brings on the market.

Using electricity has always been a success story with Harry Rohlffs. For years he has put kilowatts to work to step up his income and save hours of drudgery. Right now he uses 31 HP and is able to farm 540 acres with two hired men. Harry likes to be able to keep on top of his work and he gives a great share of the credit to those 31 HP of electricity.

Cover Picture

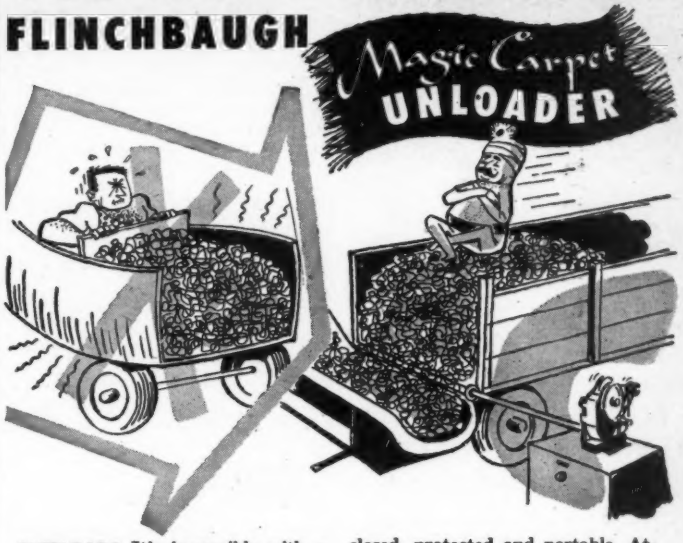
Harry Rohlff, right, and Weston Raven are shown weighing and examining seed wheat. Switches, in background, are the reins by which Mr. Rohlff controls the 31 hp he uses on his 540 acre farm. Note the pilot lights on the switches, that indicate when equipment is operating.



Above: It's a pushbutton operation from the moment a grain truck drives in. An electric hoist raises the front end of the truck dumping the grain. Then various motors carry it up and through cleaners, as shown here, to driers, treaters, baggers, and to final storage. **Right:** The main duct is beneath the floor of the drier bin. Here you can see one of the chimney-like outlets which deliver air into the portable lateral ducts. These laterals have a screened area around their base through which air passes into the grain or beans to be dried.

WHAT has happened to the lost art of "TOP-SPINNING" as practiced by the youngsters of about thirty-five years ago? Used to be a SURE sign of spring—like roller skates and marbles—to see kids pegging tops on their playgrounds. Does ANYONE remember the rules of "PEG-TOPPING" and do kids STILL spin tops in competition ANYMORE—ANYWHERE? Drop us a line—we WANT to KNOW!....SODDEN THOUGHT: Folks who DON'T know WHICH way to turn should STAY OUT of REVOLVING DOORS .... SNICKERSCOOP-OF-THE-MONTH: A hen-pecked-looking little man came to the lost-and-found window of a large department store and announced he had LOST his WIFE. The little man described her as SHORT, FAT, DUMB and VERY IRRITABLE. "Okay," said the attendant, "I can see how you could LOSE her but I'd SURE like to know SOMETHING else—WHY are you LOOKING for her?" .... Have you heard the story of the two EAST INDIAN FAKIRS who found two bags of NAILS—and started a PILLOW FIGHT? .... OVERHEARD: "THIS tonic is NO good." "WHY, what's the matter?" "The directions are for ADULTS, and I never had them." .... EASIEST way to TURN a woman's head—tell her she has a nice PROFILE ....MISOGAMIST: a man with a MISS-SHUN in the world.... EVERSTOPTOTHINK?—A PULLMAN PORTER is one of the FEW ARTISTS who ever makes money with his BRUSH .... SEWING CIRCLE: a place where the gals can go to NEEDLE each other .... JINGLEJOLLY DEPT: "JACK had money—Jill had NIL. JACK married JILL—So JACK had JILL. JILL went to RENO—NOW she's back. JACK has nothing — but JILL has JACK." (Author Unknown) .... TIMES have changed greatly since Little Red Riding Hood's day. Can you IMAGINE a WOLF nowadays dressing up to look like GRANDMA? .... If all the autos in the world were placed end-to-end — NINETY-EIGHT PERCENT would IMMEDIATELY pull out to pass the car ahead .... SCISSORS: a PIECE maker .... PARTING THOUGHT: NO matter how you milk a cow it STILL requires COWOPERATION .... Pun-peddler—DUFFY.

YOU CAN'T OVERLOAD A FLINCHBAUGH



OVERLOAD? It's impossible with a Flinchbaugh! Loads are not pushed —they're slid off—easily and effortlessly. Loads won't pack . . . you use less power. 6 to 8 tons? Your wagon or truck capacity is your only limit!

FAST? No unloader can do the job faster! And with a Flinchbaugh you can adjust unloading speed to any rate you desire. Loads *loosen* as they unload . . . won't clog blower or elevator.

EASY! Mount roller unit with four bolts and you're ready to go! Nothing extra to buy . . . nothing extra to build. No lifting of your power unit . . . it's closed, protected and portable. Attaches instantly at any height.

COSTS? 25,000 users have proven it costs less per load than any other unloader. No costly breakdowns or man-hour holdups. And our exclusive non-spring roller unit increases canvas life 200 to 500%.

Makeshift unloaders are never a bargain. A quality built Flinchbaugh is your best unloader buy for *all size loads* . . . for years and years of trouble-free operation.

A FREE FOLDER is yours for the asking. Write today for Catalog No. 50.

THE Flinchbaugh COMPANY
EBERTS LANE, YORK, PA.

FOWLER *Glass-lined* Water Heater

NO RUST. NO CORROSION. LONGER SERVICE.
SPARKLING CLEAN HOT WATER ALWAYS!

There's no finer water heater than a Fowler with *glass-lining*. Water never touches metal in a Fowler. Two coats of smooth, durable porcelain are fused-to-steel inside the tank. This glass-lining, developed by Fowler, prevents rust and corrosion; keeps water pure, sparkling clean.

Fowler electric water heater operates efficiently, economically. All models are backed by a 20-year prorated warranty. See Fowler at your dealer's, or write for full information.

FOWLER MANUFACTURING CO.
2545 S. E. Gladstone, Portland 2, Oregon

THE NEW TWO-GALLON

HOME HEALTH

HOME PASTEURIZER
for milk and cream

NEW — Dual Heat Principle
NEW — Larger Size
NEW — Faster Method

Here at last—a 2 gallon large family size pasteurizer that's compact and lightweight. Heating elements in both cover and base give double assurance of complete bacteria kill. Completely automatic—a flick of the switch, it does the rest. An attractive appliance with no moving parts to get out of order, no water jacket to fill. Laboratory tested. U. L. Approved. Guaranteed for one year.

Also available—popular one gallon size for small families.

Write for free folder on prevention of milk-borne diseases through positive pasteurization—the Home-Health way.

WATERS CONLEY COMPANY
Dept. E **Rochester, Minn.**

WITH
SOFT WATER
CLOTHES LAST LONGER

Your clothes will come clean with much less washing. A DIAMOND Water Softener saves money, saves work, saves time! Send for free booklet.

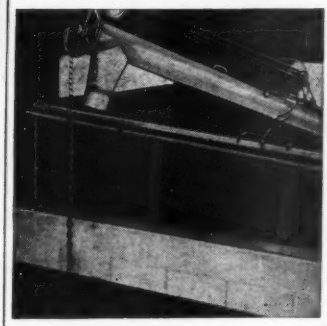
Oshkosh Filter & Softener Co.
Oshkosh, Wis.

One Man Seed Drier

It Does All the Work for 42 Cents Per Ton

By A. M. PETTIS

Many seed producers and processors in Florida, as elsewhere over the country, have realized for some time that the drying process would be much more profitable if the large amount of labor usually required could be reduced.

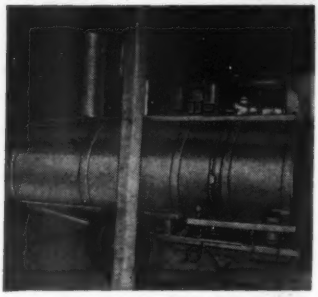


This 1 hp screw conveyor removes the seed from the wagon and dumps it in the drying bin.

R. F. Townsend, Pasco County, Florida, after looking at seed driers in his area, decided to build one that would let electric motors save the expense of hired labor. And he did just that. His drying equipment and method of handling seed have proved remarkably successful and have caused considerable interest throughout Florida.

The drying shed is designed so that vehicles may be driven through for unloading seed.

Mr. Townsend used a commercially built unit to furnish heated air. The rest was tailor made. There are six specially constructed drying bins, 6′ x 16′ each in size, with a total capacity of 25,000 lbs. of seed when loaded 8 to 12 inches deep. They look similar to conventional drying bins having a



A 5 hp indirect heat drier provides warmed air for fast drying.

A general view of the drying bins. Note the cable yokes, which support the floors, and the ¾ hp vertical elevators, one of which serves each pair of bins. These extend down through the main air duct to the bottom of the dumping pit. At present, duct openings provide air to each pair of bins. Mr. Townsend plans to partition the dumping pits so that he can use any of the six bins individually.

Mr. Townsend at the controls of his six headed winch. Each lever controls the cables supporting the floors of one bin. The ¼ hp motor drives an 800 to 1 reduction gear box which, through a chain drive, turns the winches.

perforated steel floor to allow air flow. However, there is a cone-shaped pit 11′ deep below the floor of each bin.

The steel bin floors are made in two sections hinged at the sides. They are held up in place by cables attached to an ingenious winch. This was made locally to Townsend's specifications and is operated by a ¾ HP electric motor. When a load is dry, the operater can dump each bin separately. Or, if he wants, he can dump all of them at once. To raise the seed from the pits, ¾ HP electric grain elevators are used. Each pair of bins has its own. These lift the seed into a portable 1 HP screw conveyor for delivery to wagon or truck. This same conveyor is used to transfer seed from wagons for drying.

To operate his unique drier, Mr. Townsend needs only his own labor. And that just part of the time. This last season he dried 300,000 lbs. of clover seed. During the month he was drying he estimates the five motors which convey and handle the seed saved the labor of eight men. The two other motors that were used, a 5 HP for the fan and the small one on the oil burner, would be needed on conventional driers in Florida.

The entire electric bill for drying the 150 tons of seed amounted to 42¢ per ton. In this operation electricity has taken over the work usually done by hired labor. Profits amounted to about half the cost of the drier for one season.

After seed is dumped into pit, elevator raises it and dumps it into the screw conveyor. For this operation, the conveyor's motor is reversed and the seed is delivered to the wagon or truck.

YOUR CHORES CAN BE DONE

BY Century MOTOR POWERED EQUIPMENT
FOR JUST A FEW CENTS A DAY

The time you save from daily routine is clear profit . . . whether you use it for extra work or needed relaxation. Think of the many ways in which Century motors can "mechanize" your chores. There's a Century motor specially engineered for almost any farm job . . . made rugged and dependable by a firm with more than 50 years of experience.

Century C MOTORS

Ask your electrical, hardware or farm implement dealer to serve you.

CENTURY ELECTRIC COMPANY
1806 Pine Street • St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

The Way to Farmers Market

Led the Rowes to a Brand New Kitchen

By MARY D. MYERS

Standing on market" is almost hereditary with Lancaster County farm families in Southern Pennsylvania. Generation after generation has stood behind market counters heaped with flowers, bright colored vegetables, plucked poultry and homebaked pastries and cakes of highest quality.

The Paul Rowe family which is made up of Mr. and Mrs. Rowe, a son Donald and daughters Eleanor and Audrey is a typical example of one of these energetic families. It was in the Spring of 1937 that they started out on their rented 9-acre plot with just vegetables, flowers and poultry on small scale production. But that was a far cry from their modern 40-acre truck and poultry farm which they operate today just south of the borough limits of Strasburg.

This is truly a family project, for the son and daughters have their part to play in this enterprise. Eleanor and Audrey help in the home as well as taking their turn standing on market. Donald, too, has chores to do.

This energetic family tends market twice a week at the 69th Street, Lancaster County Farmers Market in Upper Darby. This means commuting and transporting perishable goods a distance of 70 miles and then meeting the public with enthusiasm and gay spirits. The Rowes have been doing this for the last 16 years in all kinds of weather throughout the entire year. It requires planning and lots of hard work, but Mr. Rowe says, "There is always satisfaction in dealing with a grateful public."

The Rowes moved to their present location in the Spring of 1945 and embarked on a full scale program to expand their vegetable production. Mr. Rowe says, "It was necessary to expand to meet our increasing market demands." They have gone a long way in just 8 short years—adding several buildings to improve and expand productiveness. One of these buildings is a greenhouse in which they

Mrs. Rowe finds it convenient to have the freezer in the kitchen so that foods can be stored when brought from the locker plant.

Above: The Rowe kitchen before remodeling. Note small amount of work area. On the extreme left the edge of the old sink can be seen. **Right:** Here is the new all-electric kitchen. Preparation for market baking is easy with everything within arms reach. The corner cabinet above Mrs. Rowe's head has lazy susan shelf for baking needs. Cabinets are silver grey with melon colored line trim.

This is the market stand which the Rowes tend twice a week. The counter, piled high with good wholesome produce, is manned by the whole Rowe family.

grow all of their own vegetable plants, concentrating on best possible early maturing varieties. Another new building is a concrete block broiler house which houses 12,000 birds and is equipped with automatic lighting, waterers, poultry feeders and a hot water heating system.

Good farm buildings are necessary for a highly efficient and productive farm, but likewise the homemaker must have a good workshop to successfully carry on her part in preparation of market products and family food preparation. Realizing this, last summer the Rowes decided to make their kitchen a more efficient workshop. It all started with the need of a larger sink. A larger sink meant a different location and changing the location of it would mean new floor covering. All this brought about a complete change and modernization of the Rowes' farm kitchen. Kitchen plans, color schemes and appliances were studied and a plan was selected.

The first step was changing the location of the door to their basement and second floor. This was necessary to follow a U-shaped arrangement on which they had decided. Next, the sink was changed from one end of the kitchen to the other under a double window. A kitchen needs plenty of work space, so wall and base cabinets were installed. This was a big improvement over the single table and the dining table which was the only previous working area. The LP gas stove was replaced with an electric range. The 6 cubic foot freezer was placed where the old sink was located. Mrs. Rowe says, "This is used for convenient storage since our freezer is used in conjunction with several locker drawers in the nearby locker plant."

A dream kitchen is the only way that this complete change can be described. For it is now a perfect U-shaped kitchen with electric range, 10 cubic foot refrigerator, double drain sink, freezer, and lots of wall and base cabinets for convenient storage and preparation. In addition to all this, a 60-gallon electric water heater provides ample hot water. Fluorescent fixtures provide good general lighting. Two large windows in the dining area and a double window in the work area of the kitchen provide good lighting in the daytime and good ventilation in the summer.

With this modern equipment, it is no effort for the daughters to have dinner ready when the rest of the family returns from market. Also, on days when they all tend market, the dinner can be ready by setting the automatic timer of the electric range.

One glance at this kitchen makes you realize that a farm kitchen can be just as convenient and efficient as one in the city. The Rowes are getting real satisfaction from this transformation of the old to the new.

THREE WAYS TO KEEP A WIFE

In poor health by letting her lug it—

In a foul mood with an old rig like this—

Or from leaving the home you've provided
With a kitchen that warrants a kiss.

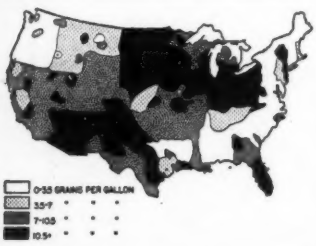
***PLENTY** of **WATER** under **PRESSURE** makes the difference*

Wash With Washed Water

Proper Treatment Makes Water Work Better

If you have laundry problems —and who doesn't—you may find useful answers in some of the highlights of the Annual Laundry Conference held in New York. No dull sessions, these, sparked by questions from a lively audience of men and women who work with all phases of home laundry. Rarely did they stump the experts. Here are some of our notes.

Water washes clothes, but not always well. Water varies and



On this map, the shading shows the approximate water hardness in various areas of the United States. Benefits from the use of a water softener will be greatest in areas where hardness is 7 or more.

it's important to control the variables in order to get good clean clothes every time. When washing problems arise due to impurities in water, the first thought is to blame your washer or the detergent. The only sure way to control water variables is to eliminate or remove water impurities by water conditioning.

Calcium and magnesium, which constitute water hardness, reduce laundry efficiency and cause waste of both soap and syndets. They form precipitates with soap and certain builders, and can seriously interfere with successful rinsing. Iron and manganese produce characteristic stains—rust-red to black—on laundry. Neither soap nor syndets will eliminate such staining, and alkaline builders and bleaches actually intensify this action.

Organic color, which is present in many areas of this country, also produces staining in laundry. In fact, in some areas of Florida, sprinkling the lawn with this water will produce a two-color house with a well defined sprinkling line. Turbidity or cloudiness, due to suspended matter, including iron and manganese, produces undesirable results in washing.

"Sulfur" (hydrogen sulfide), easily identified by its typical rotten egg odor, has many objectionable characteristics, including staining and corrosiveness. The metals of the water system rust and cause staining in the laundry, even though no iron is present in the water supply.

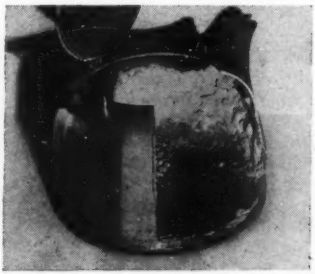
A water chemist can predict the difficulties caused by the impurities in water, and can prescribe methods for correction. A water analysis shows the kind and amount of each impurity present in the water supply.

A water softener removes calcium and magnesium and replaces it with sodium. A water softener removes soluble iron by ion exchange, and replaces it with sodium. It filters insoluble iron and turbidity in most cases. Actually, this removal of calcium and magnesium is practically complete throughout the softening cycle. Here are several questions on the effect of different water conditions and answers thereto.

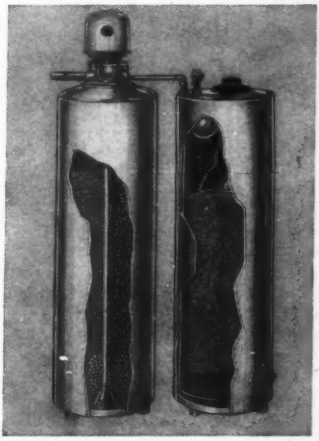
Rusty Water

What can be done about rusty water if one thinks she cannot afford to have water softening equipment in the home?

It is very difficult to handle rusty water without some kind of equipment. The method to be employed for iron removal must be chosen on the basis of a careful analysis of the problem. Both



This aluminum water kettle was cut apart to show scale deposits formed by using hard water. Take a look at yours. If there's a resemblance, you could use a water softener to advantage.



This is an automatic zeolite water softener with auxiliary brine tank, cut away to show the interior construction. The hard water enters the top of the softener (left) through an automatic valve and flows downward through the zeolite bed and supporting layers of gravel. By the time it reaches the bottom it is soft and it then flows upward through the center pipe and valve to the sink or other point of use. When the zeolite can no longer soften water it must be reconditioned. The flow of water is first reversed so that it flows upward through the bed of zeolite and runs to drain. This cleans the bed of any insoluble matter collected there during the softening run. Second, a measured quantity of salt solution from the salt tank is passed downward through the softener bed and to drain. Third, all traces of salt are rinsed to drain. Fourth the softener is returned to service. All of these four operations are automatically carried out by simply flipping one switch, conveniently located in the mechanism at the top of the softener tank. During the short time the softener is being reconditioned, a by-pass valve allows use of untreated water throughout the house. Single tank automatic softening units are also available and you can also obtain softeners in which the regenerating cycle is manually controlled. However, the principle is the same in all of them.

NOW-get all the dirt from all the wash with FRIGIDAIRE Live-Water Action!

Frigidaire's "Porcelain Pair"—Automatic Washer and Electric Dryer with cabinets, tub and drum of Lifetime Porcelain.

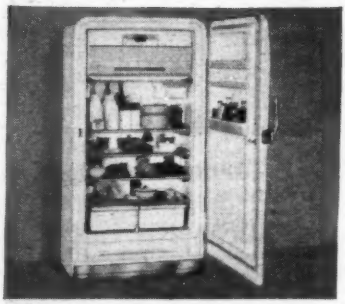
Only Frigidaire gives you Live-Water Action that gets out deep-down dirt ordinary washing actions don't touch!

The Frigidaire Automatic Washer lets you say goodbye to this dreariest of household chores! It does your wash for you—grime-encrusted overalls, sweat-stained work shirts, children's play-soiled things—all automatically! And you don't even get your hands wet! You just toss in clothes, soap, and touch the Select-O-Dial once. Live-Water Action takes over—gets out the dirt—every speck of it—and Frigidaire's new Float-Over Rinse floats it all out and away, leaving only the clean clothes!

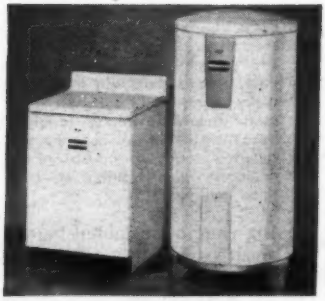
For "miracle" fabrics, too. Thorough washing and rinsing plus even suds distribution, water temperature control and flexible operation, make Frigidaire ideal for all fabrics—from cottons and woolens to Dacron, Orlon, Dynel, Nylon.

Your clothes dry faster—many ready for immediate ironing—because Frigidaire's lightning fast Rapidry Spin whirls out far more water than any other washer! Clothes are lighter, too, and easier to handle. No other damp-drying system—wringer, spinner or squeezer—gets out so much water, so quickly, so safely! See the Frigidaire Automatic Washer and new Filtra-matic Electric Dryer, soon.

Frigidaire Appliances for the Farm Home



NEW IDEAS in food-keeping are yours in the new Cycla-matic Frigidaire food freezer-refrigerator. Has separate, insulated food freezer, new Roll-to-You Shelves, automatic defrosting in refrigerator compartment. Levelcold produced by famous Meter-Miser mechanism. Several models to choose from.



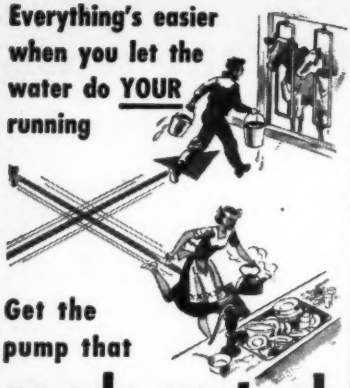
NEW DESIGN and convenience with Frigidaire Electric Water Heaters. Automatic—set 'em and forget 'em. All the hot water you want, when you want it! Round and table-top models in sizes from 30 to 80-gallon capacities. Magnesium rod models for corrosive water areas.

Refrigerators • Automatic Washer
Electric Ranges • Air Conditioners
Filtra-matic Electric Dryer
Electric Water Heaters • Electric Ironer • Electric Dehumidifier
Food Freezers

Built and backed by General Motors

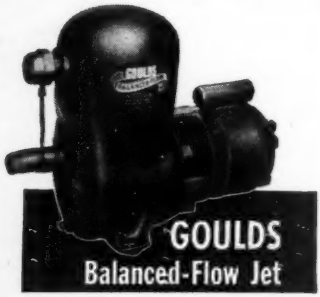
See the wonderful Frigidaire models Arthur Godfrey recommends on his daytime TV and radio show. Visit your Frigidaire Dealer next time you're in town. Or write, Frigidaire Division, General Motors Corporation, Dept. 2070, Dayton 1, Ohio, for free folder. In Canada, Toronto 13, Ontario.

Everything's easier when you let the water do YOUR running



Get the pump that

needs no tank



Save plenty of money — and get features and performance found in no other pump at *any* price! There's no bulky tank, fewer costly fittings to buy when you install the amazing Balanced-Flow. Self-adjusting capacity assures a full, steady stream of *fresh* running water with no variance in flow (within pump capacity) no matter how many taps are open at the same time. Quiet, compact, self-priming, only *one* moving part . . . lubricates itself. Easy to install *anywhere*—for *years* of comfort and convenience!

Be sure your pump is BIG enough

Running water does so much—at so little cost—it's just good business to make sure your water system is big enough for all your needs, present and future. No matter what your requirements—capacity, pressure, deep or shallow well — there's a GOULDS just right for you!

See your GOULDS dealer . . .

His business is helping farm folks plan a perfect water service. He *knows* his business—and he has the big GOULDS line of performance-proven pumps to assure *your* satisfaction! If you don't know his name—MAIL THE COUPON.

GOULDS PUMPS Inc.

Dept. E-39, Seneca Falls, New York

Please send me free 20-page illustrated book telling how to select the correct water system. Include name of my nearest distributor.

Name.....

Address.....

the source of the iron and the amount of iron present are important.

If the iron is present in the incoming water supply, it can be removed by an iron removal filter and, in many cases, by a water softener. The iron removal filter is similar to a water softener in appearance and is available to the homeowner either as a permanent unit or on a service basis.

Polyphosphates may also be employed if the iron-containing water is clear when drawn from the well. These are added to the water by means of a small feeding device.

If the source of iron is the rusting of iron pipes, the methods of treatment are those of corrosion control, rather than iron removal, and polyphosphates or neutralizing units may be used.

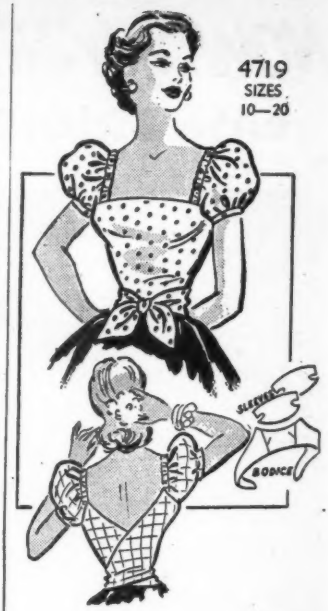
Hard Water In Rinse Cycle

What is to be done about water hardness which enters an automatic washer during the rinse cycle, since this hardness is not counteracted by a water softening compound added before the wash cycle?

The same amount of soap as represented in the little pile in front of each glass, was placed in hard water (left) and softened water (right). The hard water wastes soap and forms scummy, sticky deposits. In softened water the soap dissolves without forming any deposits. It's obvious that the softened water is ready to go to work while the hard water is still working to dissolve the soap.

Actually, an ion exchange water softener may be helpful to soften the water for both the wash cycle and the rinse cycle. A small unit which is installed in the home either by outright purchase or on a service basis will solve this problem.

If you live beyond the reach



Spring Sewing

4719—Day-to-date blouse. Puffed sleeves. Square neck in front, plunges to deep V in back. Wraps, ties to tight waist. Misses' sizes 10-20. Size 16 takes 2 yards 35-inch fabric.

4767—Child's 4-way wardrobe. Easy to make midriff, shorts, skirt, shirt. Child's sizes 2-10. Size 6 bra, skirt take 1⅝ yards 35-inch fabric; shirt 1⅛ yards; shorts ⅞ yard.

Send THIRTY FIVE CENTS (in coins) for EACH pattern to: ELECTRICITY ON THE FARM, 196, Pattern Department, 243 West 17 Street, New York 11. Add FIVE CENTS for EACH pattern if you wish first class mailing.

IN CANADA: 60 Front Street, Toronto, Ontario

of service routes, a water softener is the solution.

Cost of Water Treatment Units

What price are small home treaters?

Water treatment units may be rented or purchased. Prices range from under $100 to over $400. The price depends upon the size of unit, whether it is automatic or manually operated, and upon the design.

Effect of Acid

What is the effect of acid in water in the washing process?

Actually, the amount of acid to produce a low pH would have practically little or no effect in the washing process. It is, however, very important in the

The linen at the top was washed in hard water while that at the bottom was washed in softened water. In hard water, the insoluble soap curds stick to the fabric and prevent perfect cleansing. In softened water, insoluble deposits do not form and the full cleansing effect of the soap is utilized.

corrosion of piping. Iron piping will produce red water under those conditions, and copper piping may produce blue stains.

Acid Water

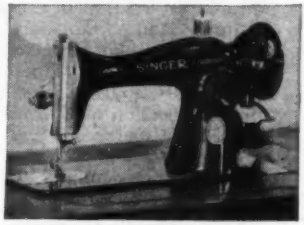
How do you neutralize acid water?

Usually the water is passed through a bed of Calcite, which is a granular limestone. Another way, of course, is to use a feeder and feed the required alkaline substance into the water.

Sulfur Odor

Does a water softening unit reduce or remove the sulfur con-

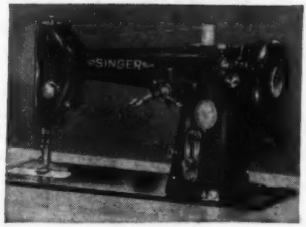
Only SINGER offers you all 3



1. Famous straight-needle SINGER

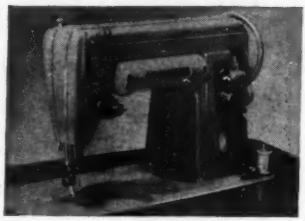
Best-known, best-loved sewing machines in the world.

Several great styles—in *a variety* of handsome cabinets and portables.



2. Amazing swing-needle SINGER

Finest zigzag machine. Does lovely plain sewing. Embroiders, makes buttonholes, sews on buttons—*without* special attachments.



3. New slant-needle SINGER

Only machine with a needle that slants *toward* you for easier seeing, easier sewing. AND it's a cabinet and portable in one!

SINGER SEWING CENTERS

There's One Near You to Serve You

*A Trade Mark of THE SINGER MANUFACTURING COMPANY, Copyright, U. S. A., 1953, by THE SINGER MANUFACTURING COMPANY. All rights reserved for all countries.

SEND FOR FREE FOLDERS!

Singer Sewing Machine Co., Dept. EF5
95 Liberty St., New York 6, N. Y.

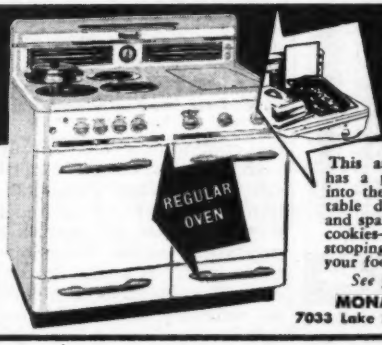
Please send me free illustrated folders on all 3 types of SINGER* Sewing Machines.

Name_____

Street _____

City_____

County_____ State_____



Only Monarch has these 2 ovens!

This amazing Monarch Electric Range has a patented "deep-heet" oven built into the range top. It's perfect for vegetable dinners, baked beans, sauerkraut and spare ribs, fowl, baking biscuits and cookies—and as a warming oven. No stooping. Just lift the cover and there's your food! Also full-size regular oven.

See your Monarch dealer or write

MONARCH RANGE COMPANY

7033 Lake Street Beaver Dam, Wis.

tent or alleviate the noxious odor?

The water softening unit may help a little bit, but a hydrogen sulfide removal unit is necessary for good results.

Water Analysis

Must a water supply within a home be analyzed before a conditioning unit is installed, or is a knowledge of the water supply in the area a sufficient guide?

The knowledge of water supplies in an area is not usually a sufficient guide unless the supplies are from a common source and treated in the same manner. Wells drilled a few feet from one another may vary in characteristics especially if the depth of water is different.

Moreover, analysis of the water supply is important not only from the standpoint of determining how the water is to be conditioned but also from the standpoint of selection of the proper conditioning material.

Thus, water analysis must be considered an essential factor in proper water conditioning.

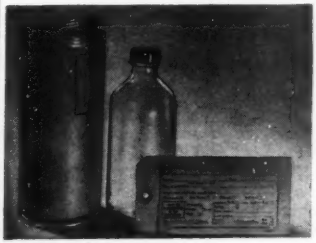
Softened Water for Cooking

What is the effect of softened water on foods and coffee?

Soft water is desirable for cooking vegetables such as peas and beans as these vegetables are actually water softeners. Because they combine with water hardness, they become tough and rubbery when cooked in hard water.

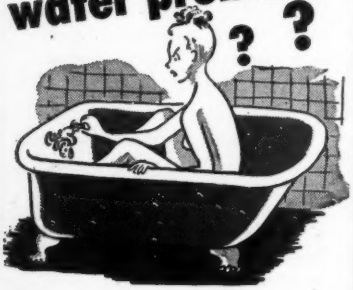
There is some difference of opinion, even among coffee experts, as to the ideal type of water for coffee brewing. Improved flavor and coffee savings have been reported when soft water is used. An added benefit is freedom from scaling in utensils and coffee urns.

It is quite likely that the flavor of coffee will not be improved by water softening in all cases. Where the dissolved mineral content of a water supply is high, or where there is excessive salt in the water, demineralization is advisable. Of course, the flavor of coffee will not be improved by water softening in those instances where the water contains substances not removed by softening, such as hydrogen sulfide.



Manufacturers of water treating equipment will supply you with a sampling container and shipping carton and analyze water samples without charge.

water problems ? ?



a BERKELEY pressure system solves 'em in a jiffy!

Don't get into a lather over water failures! For all-round utility—plenty of water for all household conveniences—a Berkeley Modern Jet System will do the job. Inexpensive to operate and will give many years of trouble-free service.

Model 056-40 Berkeley Deep Well Jet Water System pumps 600 G.P.H. at a 40 ft. pumping level with a pressure range of 20 to 40 lbs.

There's a Berkeley Jet Type Water System for your particular need.

Write for BULLETIN 505

BERKELEY PUMP COMPANY

829 Bancroft Way, Dept. A, Berkeley 2, California
668 Tiffan Ave., S. W., Dept. A, Atlanta, Georgia

THREE WAYS OF WASHING

With a rub-a-dub-dub
A board and a tub—

Or by kicking
Until you are blue—

Or by letting a modern convenience
Do the work without leaving a clue.

PLENTY of WATER under PRESSURE makes the difference

What a Change!

By Mrs. W. J. Edwards

Just a few years ago, when I was doing public health nursing, my district included a small rural settlement of about twenty houses. My first visit to this area was made on a summer day—a wash day, in fact. In every back yard there was much activity. Women were dipping boiling water from a huge black kettle set over a small fire. The clothes were scrubbed on a board. Children played about, and it always amazed me that I never saw any severe burns. In spite of the primitive equipment, I have never seen whiter clothes. Nor have I seen such exhausted women.

Contrast the above with the washday with electricity on the scene. Just the fact that my basement is well lighted by correctly placed light bulbs is a help. In the next week our new automatic washer will be installed, which I know will be a big help, as there will be less handling of clothes. In the meantime my regular washer operated by electricity does a good job. A hose which carries hot or cold water eliminates lifting.

While clothes are being washed, electricity operates the vacuum cleaner for a quick brush-up of the floors. If I'm too interested in other tasks, an electric alarm clock is a good reminder. An electric casserole prepares a hot dish for dinner with no watching. I don't know what I'd do without it!

My dream of tomorrow includes an electric dryer. But at present an electric fan helps clothes dry in the basement more quickly on bad days.

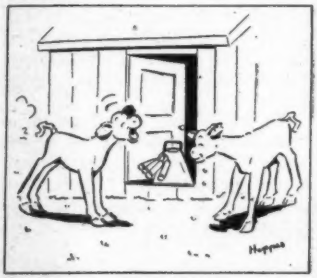
In freezing weather I like to put the children's shirts and sleepers on coat hangers, freeze them and let them dry near the furnace with the help of a fan.

A laundry cart on wheels is a help in hanging and bringing in clothes. By sorting clothes ahead of washing time I save some time. I have several cardboard cartons in the basement. Each night as I take down the day's accumulation of soiled clothing I sort the clothes into the boxes. I place the children's socks in a mesh bag for laundering.

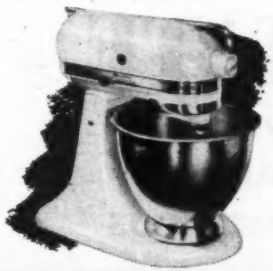
With two wash days a week, I'm ever grateful for the help I get from the flick of a switch. When I get a little tired of washing, I recall my former patients and know how they'd envy me on washday.

Extra Hands

The electric mixer of the farm housewife can save an extra pair of hands when winding knitting yarn. Tie the yarn loosely to one of the blade shafts and set the mixer for "low" speed. Guide the yarn to form a neat ball, then remove the beater from its holder and slip the ball of yarn off the shaft.



"They'll never fasten that onto us, Herbie! We're exempt by nature!"



MORE "HANDS" FOR YOUR KITCHEN

KitchenAid

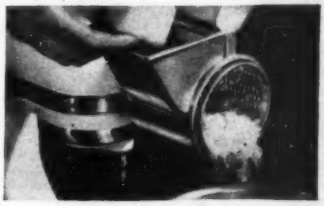
FOOD PREPARER

Here's an extra pair of hands for your kitchen—the *KitchenAid* Food Preparer with its many practical attachments.

Strain fruits and vegetables with the *KitchenAid* colander and sieve set... make sauces, jellies, jams and purees.

And think of making homemade ice cream again this easy way—it's quick-frozen with no tiresome hand turning.

You can grind meats, or chop vegetables, fruits, nuts—all sorts of items to make unusual food creations.



And for delicious salads and coleslaw, shredded cheese—easily made with the slicer and shredder.

KitchenAid

The Finest Made... by Hobart

For literature, write *KitchenAid* Electric Housewares Division of The Hobart Manufacturing Co., Dept. KEF., Troy, Ohio.

The World's Largest Manufacturer of Food, Kitchen and Dishwashing Machines

Biscuits at their best are high, golden brown, tender and flaky. Serve them hot to glamorize simple meals.

Hot Biscuits Mmmm!

Hot breads make simple meals take on real importance. Biscuits are easy to mix and bake.

The basic biscuit recipe may be varied for special treats. For breakfast, have Pork Sausage Biscuits. To the biscuit recipe add ¼ pound browned pork sausage meat before adding milk.

Make Cheese Purses for dinner or supper. Roll biscuit dough out ¼ inch thick. Cut with large biscuit cutter and place a strip of cheese—1½ inches long—in center of biscuit. Fold biscuit over cheese and seal edges.

Chives biscuits are made by adding 4 tablespoons minced chives to the flour mixture. Make herb biscuits by adding ¼ teaspoon mustard, ½ teaspoon dry sage and 1¼ teaspoons caraway seeds to the flour mixture.

Biscuits

2 cups sifted flour
3 teaspoons baking powder
1 teaspoon salt
2 to 4 tablespoons shortening
2/3 to ¾ cup milk

Sift together flour, baking powder and salt. Cut or rub in shortening. Add milk to make soft dough. Turn out on lightly floured board and knead gently 30 seconds. Roll out to ½ inch thickness. Cut with floured biscuit cutter. Bake on ungreased baking sheet in hot oven (450°) 10 to 12 minutes. This makes about 1 dozen biscuits.

RCA ESTATE

Electric Ranges give you

☆ MORE COOKING AREA

☆ MORE COOKING METHODS

Take a tip from **Duncan Hines,** America's noted authority on good food and check the features of the RCA Estate. When you see it GRILL, BAKE, and BARBECUE all at the same time you'll understand why he uses an RCA Estate.

Model shown—5317

SEND FOR DUNCAN HINES' RECIPES. 64-page cook book, "The Art of Grilling, Baking, and Barbecuing"—including 12 of Duncan Hines' favorites. Enclose 25c in stamps or coin. **RCA Estate Appliance Corporation, Dept. R-5, Hamilton, Ohio.**

CONVERTO-GRID grills steaks, chops, fruit rings. Converts into super giant fifth unit.

BAR-B-KEWER MEAT OVEN: Radiant heat imparts a charcoal-done flavor to whole chickens and roast.

4-WAY AUTOMATIC CLOCK controls Balanced Heat Oven, Electricooker, Bar-B-Kewer or appliance outlet.

Don't Be Pound-Foolish

Don't hesitate to buy proper freezing wrapper materials because of cost. Ordinary wax paper, butcher paper, or regular ice cream cartons do not give adequate protection against food deterioration for food stored longer than two weeks. The cost of the food lost by this penny-wise "economy" may far exceed the cost of proper packaging materials.

Better Drying

. . . . . (Here from page 5)

other two possible, is the use of greatly increased volumes of natural air. Recommended air deliveries have continually increased since the origin of mow drying. Today the accepted recommendation is 25 cfm (cubic foot per minute) for each sq. ft. of floor area.

In 1950, large dryers, studied by the writer, were using 25 cfm and adding fuel oil heat for desired drying capacity. Hay was placed on the dryer at 38 to 42% moisture and dried for safe storage at an electricity and fuel oil cost of $5.04 a ton of dry hay.

In 1951 the air distribution systems for these same dryers were enlarged and the air volume increased to 44 cfm per sq. ft. of floor area. The static pressure increased from .4" to .68 inches of water.

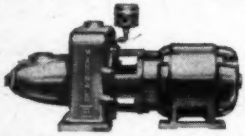
Last season the oil and electricity cost for drying 50 to 55% moisture hay for safe storage

running water?
all I need
and more.

with
McDONALD'S
5 H.P. HYDRO-JET

It pumps from depths of 260 ft. Convertible for deep or shallow wells. The same, big pump is available in sizes of 1½ to 5 H.P.

Be sure to see McDonald.
Write today for free catalog.



Series 2500 Convertible Hydro-Jet
A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA
Pumps • Brass Goods
Oil Equipment
EST. 1866 McDonald

MORE COVERAGE PER DOLLAR

with
RAIN BIRD
Sprinklers

NO. 80 SPECIAL

Proved by world-wide use throughout the years, and improved by continuing research, Rain Bird leads the sprinkler industry because it delivers more coverage per dollar on large and small acreage alike.

There's a Rain Bird sprinkler for every agricultural requirement, with 19 different models ranging in size from 1½ G.P.M. at 3 pounds pressure to 610 G.P.M. at 120 pounds pressure.

If you have a special problem our research department is at your service.

Get complete details now!

NATIONAL
RAIN BIRD SALES & ENGINEERING CORP
AZUSA, CALIFORNIA
RAINY SPRINKLER SALES
1616 WEST LAKE ST. PEORIA 5, ILLINOIS

was $3.61 a ton of dry hay. That's a saving of $1.43 per ton. A breakdown showed that, although the electric cost for delivering more air was increased $0.21 a ton, the fuel oil costs were reduced $1.64 a ton.

To increase air deliveries it is first necessary to provide an air system that will handle air at a reasonable pressure. Increasing power without providing a suitable air system may result in a small but costly increase in air delivered. The accompanying drawings and picture show the methods that have been tried last season for enlarging the air systems for both high and low mows.

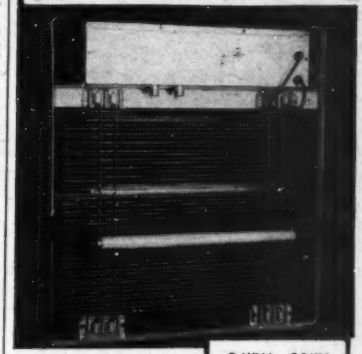
Producing more and better hay for less cost is a very encouraging trend in these changing times.

Lightning

. . . . . (Here from page 11)

When you are buying lightning protection, insist that the installer supply you with an Underwriters' Laboratories Master Label on the completed installation and accept no substitute. This label requires the filling out of a report form, as to the depth of the groundings installed. It is signed by you, as the witness, and countersigned by the installer and the manufacturer supplying the material. This report form is then mailed to the offices of the Underwriters' Laboratories, Inc., in Chicago. There, the Master Labels are issued and supplied to the manufacturer who in turn must maintain a permanent record of them and mail the label direct to you. Further than this, the Underwriters' Laboratories maintain a field inspection service and inspect approximately 25% of every installers work annually. These are of their own choice without the knowledge of the installer. They require prompt correction of any deviation from their standards at no cost to the property owner. With this requirement in the background, you can count on a listed installer of the Underwriters' Laboratories providing 100% correct installations at all times in the field and rest undisturbed during any electrical storm.

For your Insect Problem use a
Gardner
Electrified Insectocutor



24"W x 28"H
New Blacklight
Fluorescent
tubes included

Gardner Electrified Insectocutor — a proven medium as an economical aid in the control of night-flying insects that plague farm and garden. Hundreds are already in operation. Gardner also makes electric fly traps and fly screens for use in barns, food processing plants and homes. Write for an illustrated folder to

Gardner Manufacturing Co.
6553 Barstow St., Horicon, Wis.

You can feed 20 cows in 60 seconds —with a Booms self-unloading Feed Cart

Holding 25 bushels, an inexpensive Booms self-unloading feed cart will discharge while you wheel it slowly down the aisle. An electric motor does the work, air tires make pushing easy. Saves hours every day — and all that mean forking. Made by Booms, one of the nation's leading manufacturers of wagon unloaders. Ask your implement dealer — or write for full information.

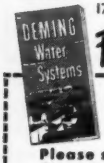
Booms SILO CO. Harbor Beach, Mich.
In Business Since 1929

WORK-SAVING
DEMING
Water Systems

Put a modern Deming Water System to work for you and your family. Have "city water" where and when you want it... Cost of operation is only a few cents a day. In the complete Deming line, you have the biggest selection for type, size and capacity... *Ask your Deming dealer!*

NEW!

Latest addition to the big Deming line—the NEW Submersible Jet Water System for deep wells... Entire pumping unit (including motor) is corrosion-proof for underwater operation. No pump house needed. Full range of capacities from 170 to 1485 gallons per hour.



Free Guide!

THE DEMING COMPANY
504 Broadway • Salem, Ohio

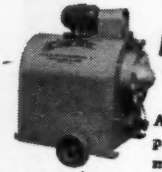
Please send FREE guide of facts about how to select a water system.

NAME_____

ADDRESS_____

GEM DANDY ELECTRIC CHURN
TAKES THE WORK OUT OF CHURNING
Over a million satisfied users. See your Hardware dealer or write ALABAMA MFG. CO., Dept. J., Birmingham 3, Ala.

DRY CROPS QUICKLY!
WITH
American
ALL-CROP DRYER
•SEEDS •GRAINS •HAY
•ALL FARM CROPS



ALL-CROP DRYERS prepare your crops for top market prices or safe storage. Find out how you can increase your profits with this equipment.

American CROP DRYING EQ. CO.
CRYSTAL LAKE ILLINOIS

for Junior Partners

HI—

When I was a youngster, the passing of May baskets was practiced regularly by all the children I knew. The baskets, themselves, were as pretty as we could make them and they were filled with candies or some such special treat. It was fun to give or receive a May Basket. It was a way of sharing something especially good.

I'd like to share something good with you. It doesn't come in a basket, but it's one of the sweetest things I know. Each Spring it runs through my mind and I find an inward pleasure just from repeating it to myself. Here it is,

The winter is past,
The rain is over and gone,
The flowers appear on the earth,
The time of the singing of birds is come.

It's from the Song of Solomon and I sing it to myself every Spring. I hope you'll share it with me.

Kenneth V. Anderson

Steady Hand Tester

By ROBERT T. SCOTT

How steady are your hands and the hands of your friends? You can check with a Steady Hand Tester. Your tester can be fun at a meeting or party and would attract a lot of attention in a fair booth.

The test is to move a probing loop over a wire emblem (4-H, FFA, or FHA) without the loop touching the wire. If you touch the wire before you move the loop to the end of the emblem a buzzer, or bell, sounds. If your hand is steady you will be able to move the loop safely to the end and make the light glow.

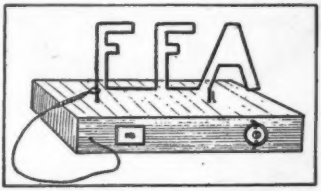
The materials you need are:

number 10 or 12 solid copper wire (enough to form the emblem)
2 dry cell batteries
buzzer or door bell
single pole switch
switch cover plate
socket for Edison base flashlight bulb
2-cell flashlight bulb
bell wire
lead pencil
wooden base

Begin by removing the insulation from the solid copper wire and bend it into the desired shape. Leave enough extra wire at the beginning and end to insert the wire into the base and make the necessary electrical connections. About three inches more than the thickness of the wood you plan to use to make the base is sufficient. Letters 7 to 10 inches high can be made with number 12 wire. Larger letters need heavier #10 wire.

Build a box-like base with the top large enough to support the emblem. The sides should be high enough to mount the switch and light socket on the outside, and the buzzer or bell inside. Five inches is a good height.

Cut a hole 2½" wide and 2" high in the front of the base, about 4" from the left side. This hole should be large enough to receive the switch. The flashlight bulb socket should be mounted on the front of the base about 4" from the right side. Drill three 1/16" holes in the front of the base. Two are near the socket and one is about 2" from the left side. These allow you to make wire connections for both the probe and the



Here is a sketch of the finished tester. Note the location of the switch, light, light contact at right end of emblem, and the holes in the front of the base through which wires go to the probe and to the light terminals. The wire which forms the emblem fits into holes in the top of the base. Don't forget the tape at the right end of the emblem which allows you to light the lamp without ringing the gong.

lamp. The buzzer, or bell, goes inside the base halfway between the switch and the bulb socket.

In the top of the base, drill two holes in which the mounting supports of the emblem will fit snugly. Drill a 1/16" hole about ¼" from the hole for the support at the right end of the emblem.

You are now ready to assemble your tester. Cut a piece of bell wire about 5 feet long.

There is practically no limit to the designs you can make. Here are three other types of emblems.

Connect one end of this wire to one of the switch terminals. Run the other end out through the hole drilled at the left of the base. This becomes the probing loop. To make a handle to hold the loop, split a lead pencil and remove the lead. Lay the free end of the wire between the halves of the pencil letting about 3" of wire extend beyond the pencil end. Tape the pencil back together. Remove the insulation from the wire extending beyond the pencil and make a loop not more than 1" across.

Connect another piece of bell wire about 5" long to the other switch terminal for connection to the batteries. Mount the switch in the hole cut in the front of the base and put its cover plate in place.

Next, the two batteries should be wired in series as shown in the wiring diagram. Connect one terminal of the batteries to the switch and the other terminal to one of the buzzer, or bell, terminals. You will also have to run a second wire from this point to one of the light socket terminals.

The wire emblem should now

POWER
to heat . . . to penetrate . . . to dry

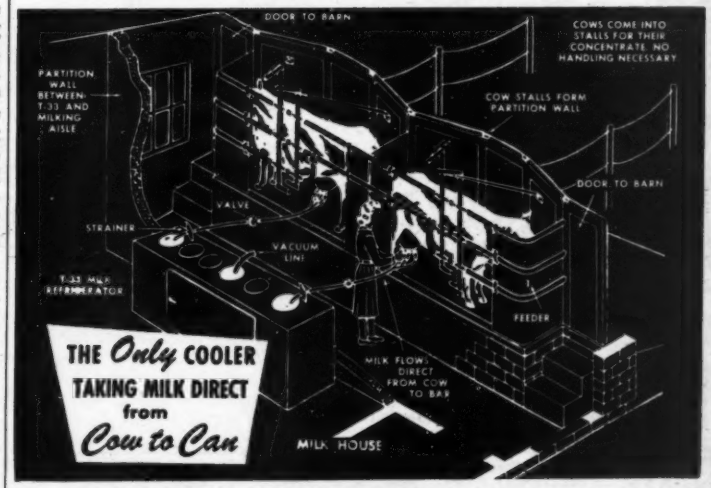
Unique heat exchanger design makes this drier compact, yet efficient. Maximum radiation surface for maximum economy. Add this to the specially designed Hartzell axial flow fan — it forces heat vigorously through a batch drier, mow or bin — and you have

Power . . . to heat . . . to penetrate . . . to dry

The Hartzell drier will give you useful, economical, trouble-free service. Easy to operate, automatic controls. Available in 3, 5 or 7½ HP sizes; priced complete; nothing extra to buy. Write for folder or contact your dealer.

HARTZELL propeller fan co.
Div. of Castle Hills Corp.
AGRICULTURAL DIV. DEPT. E, PIQUA, OHIO

AUTOMATIC MILKING INCREASES PROFITS


DOOR TO BARN
COWS COME INTO STALLS FOR THEIR CONCENTRATE. NO HANDLING NECESSARY
PARTITION WALL BETWEEN T-33 AND MILKING AISLE
COW STALLS FORM PARTITION WALL
DOOR TO BARN
VALVE
STRAINER
VACUUM LINE
T-33 MILK REFRIGERATOR
FEEDER
THE Only COOLER TAKING MILK DIRECT from Cow to Can
MILK FLOWS DIRECT FROM COW TO BAR
MILK HOUSE

Produce profitable high grade milk **AUTOMATICALLY** . . . without stooping, carrying or pouring, without lifting heavy milk cans. Just install milking parlor, connect milk machine to our T-33 refrigerator or T-33 tank cooler, and you have the 20th Century System of milking. Milk flows direct from cow to can—never exposed to outside air—starts cooling instantly. When first can is full, milk automatically by-passes to next can. Keeps milk grade high, bacteria low, insures top prices. Pays for itself in 6-12 months. Write today for free literature and installation plans.

ZERO MANUFACTURING CO., 618-E DUNCAN, WASHINGTON, MISSOURI

Weld faster, easier, better

with the RIGHT electrode for EVERY job...

Special $1.00 offer!

Sample kit of Farmpack electrodes — enough to let you see for yourself that you get faster, smoother, easier welds on a wide variety of materials.

Send your dollar today!

P&H FARM WELDING DIVISION
HARNISCHFEGER CORPORATION
3050 Fourth Ave., So., Minneapolis 8, Minn.
Home Office: Milwaukee 46, Wis.

RECOMMENDED for FASTER PASTEURIZATION AND BETTER FLAVOR!

Write for details on

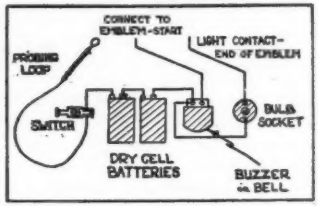
The ***SAFGARD***
PRES-VAC
MILK AND CREAM PASTEURIZER

Its *pressurized* heating destroys all milk-borne disease germs faster (up to 2 gallons in 24 minutes). Its *vacuum cooling* seals in all vitamins and delicious natural flavor. 1 year guarantee. For FREE circular write Dept. 5-E.

Model P-3000
2 gals. cap. f.o.b. factory $37.50

SAFGARD DIVISION
GRAND SHEET METAL PRODUCTS COMPANY
Melrose Park, Illinois

be mounted on the base so that the wire running from the bottom of one letter to the next is about 1″ above the top of the base. Bend the extra wire over, at each end, after it is inserted in the top of the base, and use insulated staples to fasten it securely to the underside of the wood. Before mounting, put the probing loop in position around the wire forming the emblem. Using bell wire, connect the second terminal of the buzzer



This wiring diagram shows the connections you must make. The batteries and the buzzer are concealed inside the base of the finished tester.

or bell to the left end of the emblem. Then wrap a layer of rubber tape for about 2″ around the right end of the emblem.

Next, attach a wire to the second terminal of the light socket. Run this wire through the hole in the front of the base, then up through the 1/16″ hole drilled near the support at the right end of the emblem. Use an insulated staple to hold this wire up in place. It should extend up out of the hole slightly less than the height of the taped area. Remove the insulation from this part of the bell wire. The probing loop will make contact at this point to make the light glow if the contestant is successful.

Your tester is now ready. You can turn the switch on when anyone wants to see if his hand is steady. If it's too easy, reduce the size of the probing loop. Leave the switch off, so the batteries will not run down, when the game is not being used.

Questions and Answers

Types of Water Softeners

▶**Question:** *There must be other ways to soften hard water besides the water softening systems I see advertised. Do you have any suggestions?* Mrs. L. K. S., Penna.

▶**Answer:** There are many different products for softening water. Washing soda, borax, as well as some of the new soapless detergents have water softening properties. However, all of these products are used just once and must be replaced. As such, they are a constant cost item in the budget. For extremely hard water they are not entirely satisfactory. On the other hand, water softening equipment contains a substance that exchanges a small amount of sodium salts for the water hardening minerals. After varying periods of use, depending on the hardness of water, the softening material is regenerated simply by flushing the softener with a salt solution. Salt is very inexpensive and as the softener is connected to the plumbing system, any and all water drawn is soft. Most people who have installed such equipment regard them as an excellent investment.

Water Hammer

▶**Question:** *I am writing to ask if you know of any method of eliminating water knock and hammer on a water line. A pressure tank in the basement supplies water to a stool drinking cup at a distance of about 450 ft. When the cup is in use it causes a bad hammer in the lines in the basement. The pressure is the standard 20 to 40 lb.*

I installed two water hammer eliminators in the line near the cup, but with little if any result. There are several right angle turns in the water line, which one would think might eliminate this trouble. I heard of somebody who put a rubber connection at some point in his line to stop the hammer. Can you give me any information along this line? The pipe is ¾ in.

L. H., W. Va.

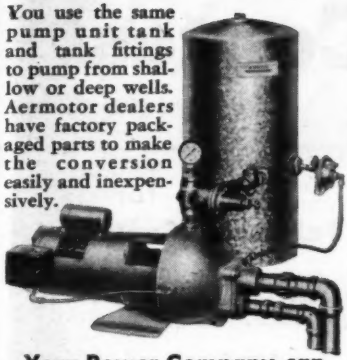
▶**Answer:** We suggest that you install one of the water hammer eliminators in the basement in the pipe which leads out to the barn. In other words, get the water hammer eliminator as near to the place where the noise occurs as possible.

Each fountain will serve 400 birds. All Brass—Sturdy—Foolproof—Time tested—pays for itself in labor saved—Has anti-freeze protection, optional. Send for details today!

SMITH-GATES CORP.
PLAINVILLE, CONN.

BE SURE TO SEE THE *New*
CONVERTIBLE
JET PUMP

You use the same pump unit tank and tank fittings to pump from shallow or deep wells. Aermotor dealers have factory packaged parts to make the conversion easily and inexpensively.



Your Power Company can put you in touch with an

AERMOTOR DEALER

AERMOTOR COMPANY
DEPT. 1005
2500 Roosevelt Road
CHICAGO 8, ILL.

Save on Feed
SAVE TIME AND MONEY...
Roll feed grain at home with a
WOOD'S GRAIN ROLLER
for ½ to 1¢ per cwt. Thousands in use. Electric or belt drive. Write for literature.

THE W. C. WOOD CO. LTD.
GUELPH, ONTARIO, CANADA
WAREHOUSES IN U.S.A.

LOOK BETTER
FEEL BETTER
USE A
Vibrosage
ELECTRIC MASSAGER
*Professional-Type
*4 Scientifically Designed Applicators
*Sanitary

A few minutes daily use of VIBROSAGE gives that stimulating, healthful aid to circulation . . . relief from aches and pains. Four applicators assure maximum effectiveness for scalp, face and body. Operates on 110 volt, 60 cycle A.C. *Five day trial—money-back guarantee!* If your dealer cannot supply you, send $8.50 check or money order, for prepaid shipment. Or, send $2; pay postman balance plus postage and C.O.D. charges.
BEAUTY APPLIANCE CORP., Dept. V463-E, Racine, Wis.

If this gives some relief, it might be well to place both eliminators in the basement.

Sometimes animals keep nosing or bumping drinking cups so there is a sound carried through the pipe which is not water hammer. I doubt if this is your difficulty, but if it should be, a section of rubber hose placed in the pipe from the barn might correct the difficulty.

Better open the eliminator and examine to be sure the diaphragm has not been ruptured.

Contamination in Well

▶**Question:** *Our water was analyzed last April. It showed extremely hard due to presence of calcium carbonate. It wasn't that way until an oil well was drilled near the house.*

Also had a bacterial analysis from faucet in house at the Division of Public Health in Topeka. It showed coliform organisms. From well it showed turbid.

Can you tell us if this water is safe to use for drinking and cooking and also for stock. And if anything, what to do to correct this?

W. H., Kans.

▶**Answer:** You have nothing to fear from the calcium carbonate in your water but the coliform organisms sound like contamination with sewage. Calcium carbonate is just lime and makes water hard. It can be removed readily with a water softener.

The report from a Public Health Department should have told you specifically whether the water was good to drink or not. If it did not I would send the report back to them and ask them what they mean by it.

The turbidity means that the water is a little dirty.

It would be my opinion that drilling an oil well 100 yards or more from your well should not contaminate it. If there is contamination, I would expect it to come from the surface rather than from under ground. Is the well protected from surface drainage into it? This drainage into the well might occur below the ground surface if the top layer is very porous and sandy and the well is not cased.

If the oil well is close to your well and is not properly cased and protected at the surface, dirty water might run down outside the casing and seep into your well.

The water would probably not do any injury to your livestock. It should not be used for cooling milk or for drinking. It would be safe to use for cooking and drinking if you boil it first. If it were my well that's what I would do until I had a report from the Public Health Department saying that it was not contaminated.

VOGEL
FROST-PROOF
HYDRANT
- Will never freeze when properly installed.
- Running water available all year 'round.
- Reduces fire hazard.
- Increases operating efficiency.
- Over a million Vogel Frost-Proof Closets and Hydrants have been sold.

The handle in this position shows you that the water is positively shut off. A leaking hydrant is sure to freeze in winter.

For information, see your nearest Plumbing Supply House—or if you write us direct, state the county in which you are located.

JOSEPH A. VOGEL CO. WILMINGTON 99 DELAWARE

By using a fast, efficient Booms Wagon Unloader, you can easily handle 5 tons of any crop in just 7 minutes. Simply attach this tested, proved unit to any flat-bed wagon; team it with any blower, elevator or conveyor; and hook it up to either gas or electric power. It will never tip, tilt or turn over . . . and there are two running speeds for constant load control. See your dealer or write for an illustrated folder.

Booms SILO CO.
Harbor Beach, Mich.
In Business Since 1929

FUN FOR ALL—the whole family can take part in this contest. CASH PRIZES will be awarded for the best suggestions for a last line to complete the verse at the bottom of this page.

What Would YOU Say?

Rhyme Contest

RULES—MAY CONTEST

Seven cash prizes will be awarded for the best last line to complete the verse in the coupon below. Your suggestion should rhyme with the second line.

The first prize will be $25 cash; the second prize $10. In addition, five consolation prizes of $3 each will be awarded for the best last line furnished.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent may enter but each contestant may submit only one line.

Question "A" must be answered.

Entries must be sent to the Contest Editor, ELECTRICITY ON THE FARM Magazine, 8 So. Dearborn Street, Chicago 3, Ill., before June 15.

The decision of the judges is final and all entries become the property of ELECTRICITY ON THE FARM Magazine.

Winning names and entries will be announced in the October issue.

Send your entry on the coupon or make out a similar form on a plain sheet of paper or government postcard.

To put the water where you want it,
Use a pump and pressure tank
Then turn its flow to make a profit,
? ? ? ? ? ?

My suggestion for a fourth line to the above verse is:

.....

A. Are you satisfied with the treatment you receive from your Electric Farm Equipment dealer? ..... What would you like him to do that he is not already doing?

My name is.....

R.F.D......**Post Office**.....

County.....**State**.....

Awards for February Contest

Who cares what Mr. Groundhog sees
He may be right or wrong
Electric blankets on the beds
? ? ? ? ? ?

The Winning Fourth Lines

FIRST PRIZE—$25 CASH

"Sound rest, good health, prolong!"
Mrs. Auburn Turner
Box 86, Lake Linden, Mich.

SECOND PRIZE—$10 CASH

"Warm feet, sweet dreams, prolong!"
Mr. Lester McClure
Walton, Kansas

Five Consolation Prizes—$3 Each

"Tames cold! Dial low or strong!"
Norman S. Nash
Northdale Farm
North East, Pa.

"Those balmy nights prolong."
Mrs. G. Jos. Owens
R. 2, Kindred, N. D.

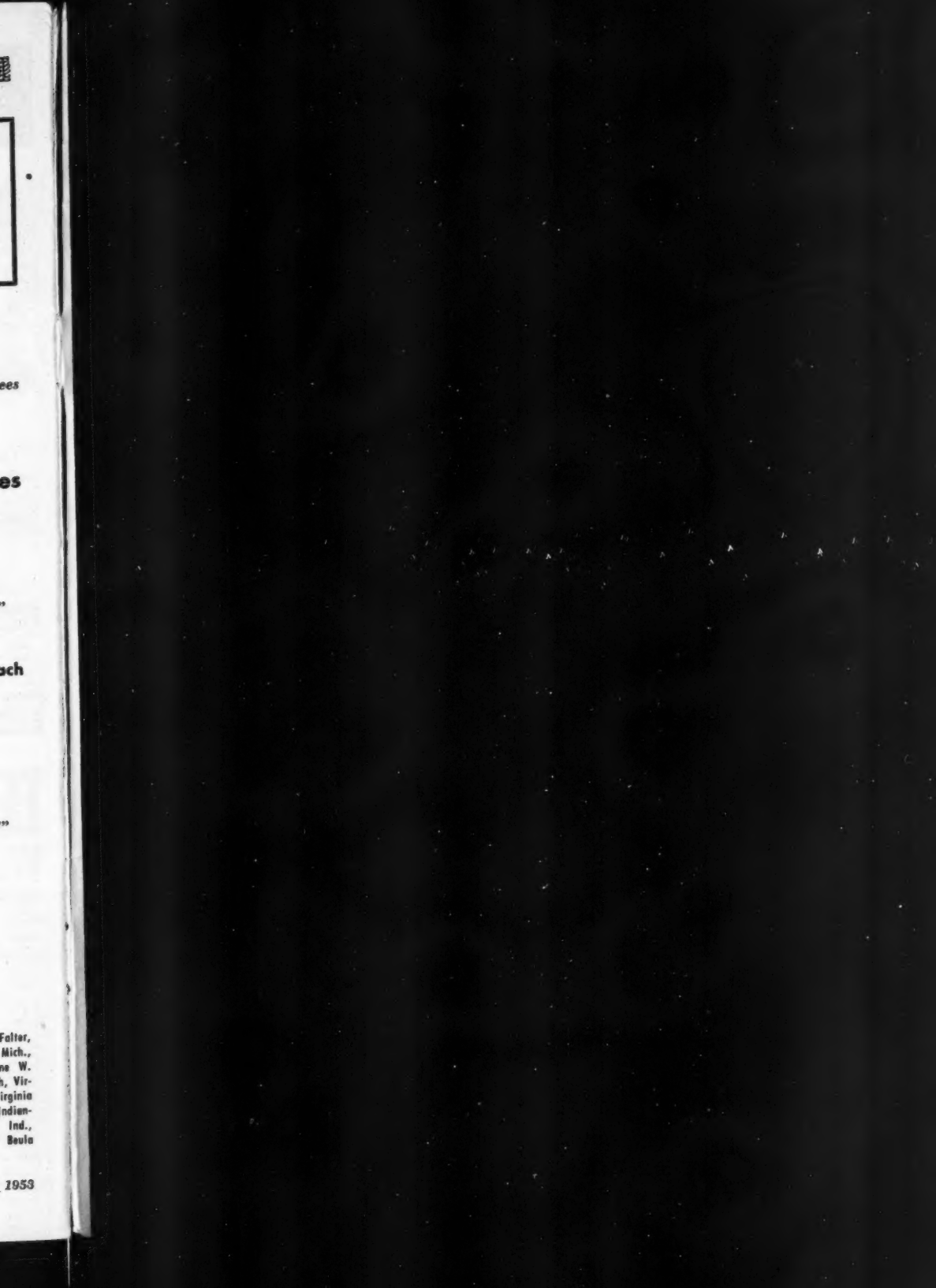
"Healthful sleeping! Bodies strong!"
J. C. Claude
Imboden, Ark.

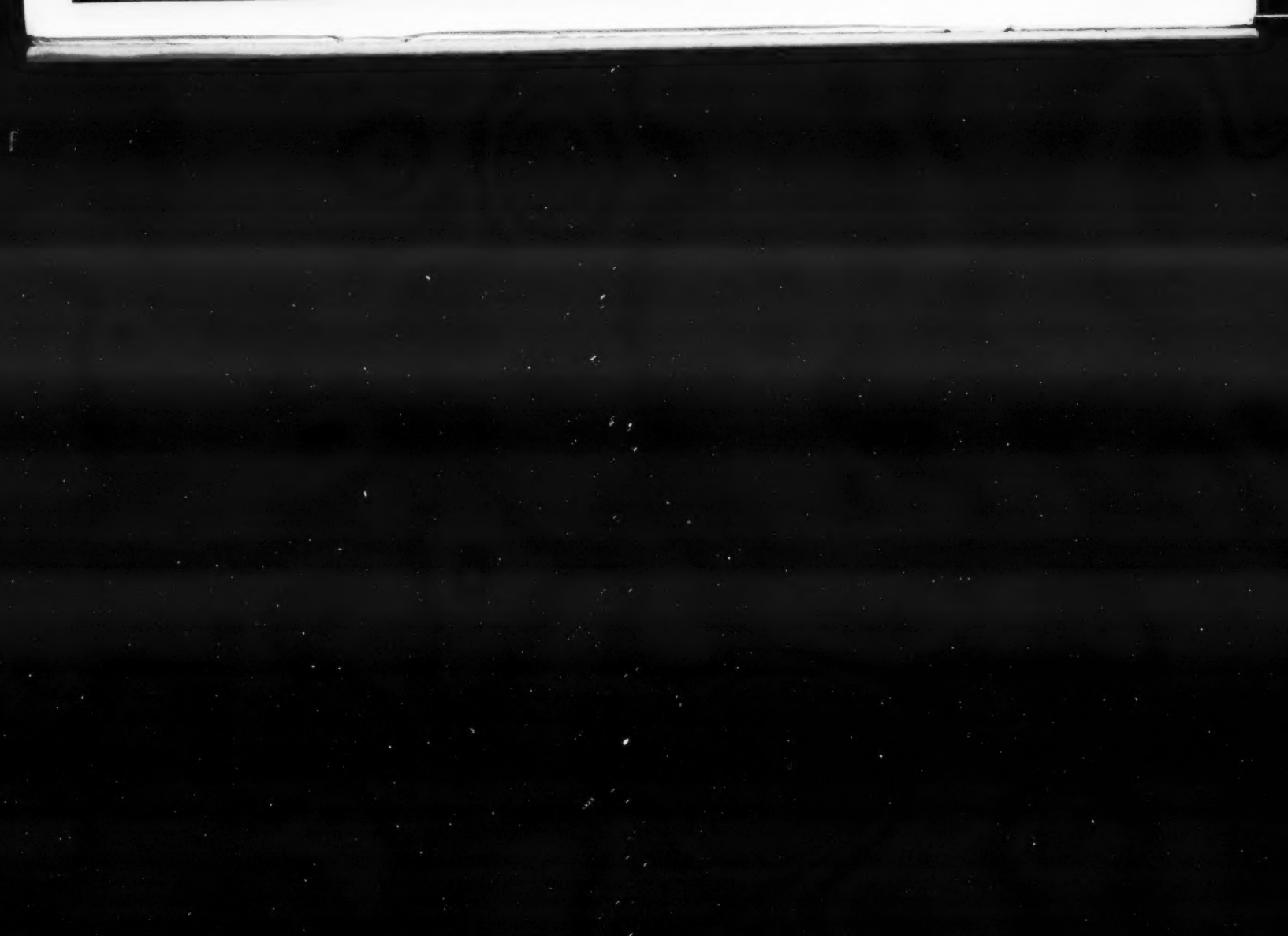
"A switch gives chill the gong."
Donald Lipps
Runnells, Iowa

"Gives even heat where it belongs."
Mrs. Virgil Hildebrand
Hancock, Iowa

Honorable Mention

Dorothy Boecker, Weslaco, Texas, Mrs. Frank Falter, West Bend, Wisc., Melvin Kalanquin, Lapeer, Mich., Mrs. Ernest Kocher, Bloomsburg, Pa., Katherine W. Parks, Cockeysville, Md., Eula Parson, Portsmouth, Virginia, Carol Ann Riddle, Colfax, Iowa, Mrs. Virginia Sharp, Springfield, Illinois, Mrs. Chalmer Waddy, Indianapolis, Ind., Jane Anne Williams, Montpelier, Ind., Mrs. Walter Wilson, Jr., Gasport, N. Y., Mrs. Beula Zerbe, Northumberland, Pa.

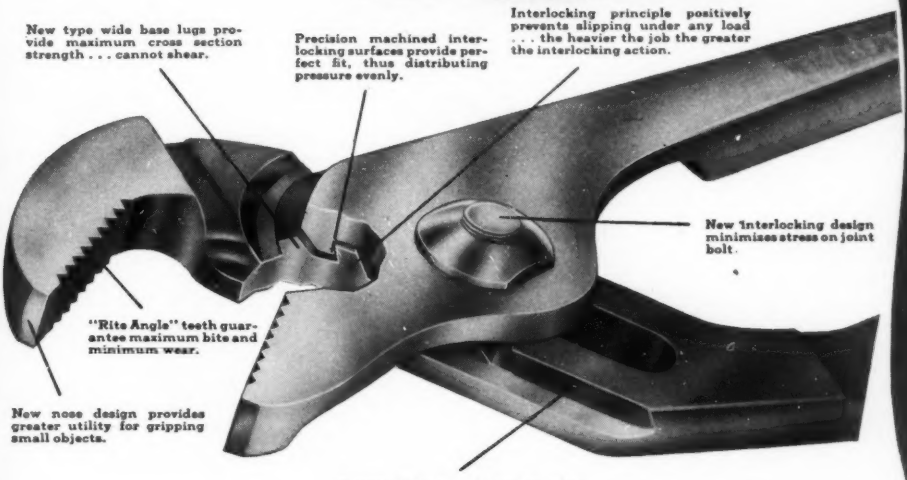




The plier design that OBSOLETES all others

THE NEW No. 420 CHANNELLOCK PLIER

TRADE MARK REG. U. S. PATENT OFFICE


New type wide base lugs provide maximum cross section strength . . . cannot shear.
Precision machined interlocking surfaces provide perfect fit, thus distributing pressure evenly.
Interlocking principle positively prevents slipping under any load . . . the heavier the job the greater the interlocking action.
New interlocking design minimizes stress on joint bolt.
"Rite Angle" teeth guarantee maximum bite and minimum wear.
New nose design provides greater utility for gripping small objects.
Patented design of tension edge provides more strength and eliminates stress concentration at channels.

Here's the new, improved Channellock Plier—bringing to you new features which offer more positive gripping, greater strength and longer wear. The undercut interlocking channel is the first really new idea in plier design in years. Engineering skill has developed a plier with new patented features which give you the newest, strongest, most practical plier you can buy. Here is a plier that will last for years! Channellock Pliers—made only by Champion DeArment Tool Company, Meadville, Pa.

Send for your Catalog today.

Only CHAMPION DeARMENT *makes* CHANNELLOCK

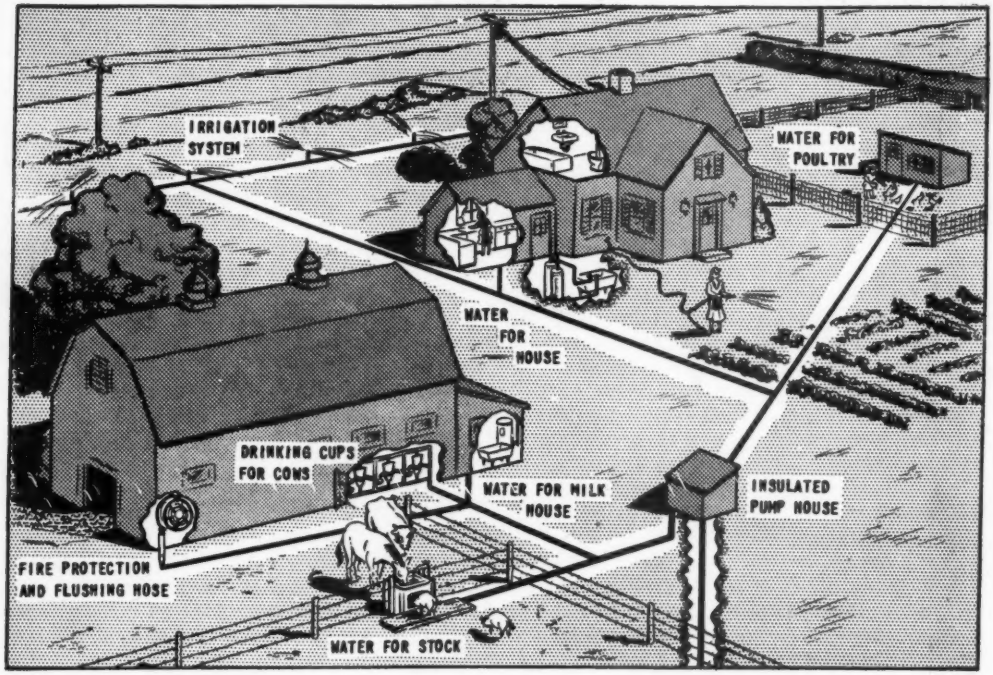
CHAMPION DeARMENT TOOL CO. • MEADVILLE, PA.

Mr. S. S. Sutherland,
Agric. Teacher Trainer,
Univ. of Calif., Univ. Farm,
Davis, Calif.

PERIODICAL

Sec. 34.64, P. L. and R.
U. S. POSTAGE
PAID
Dayton, Ohio
Permit No. 213

POSTMASTER:—If undeliverable send Form 3547. Include Stencil number. Postage is guaranteed.
ELECTRICITY ON THE FARM
24 W. 40th St., New York 18, N. Y.



WATER—WATER—EVERYWHERE

To Produce More...Work Less!

A growing farm needs a growing supply of running water at the turn of a tap. An out-of-date water system will slow down production . . . cost you time and labor . . . impair the health and safety of your family.

Do you have an electric water system that provides plenty of water automatically for hogs, chickens and cows, —for fire protection, for irrigation, for quality milk production—for every household task in kitchen, bath, laundry, and toilets! Plenty of water promotes prosperity and health.

Call on us for assistance in planning an adequate water supply system on your farm.

COAST COUNTIES
GAS AND ELECTRIC COMPANY